

MacAddict

SPECIAL REPORT:

Your Hands-On Guide to

THE DIGITAL GOOD LIFE

► Good-Bye, Film

Everything you need to know
to make the switch to digital

► Palm vs. Pocket PC

Is there a Microsoft PDA in
your future?

► MP3 Comes of Age

A new crop of MP3 players has
arrived—we show you the best

LIGHT IT RIGHT

Lighting secrets of the pros

MANAGE YOUR MEDIA

Organizing your digital assets

REVIEWED:

Conflict Catcher 9, Epson C60,
Combustion 2, FireWire KeyChain,
Spider-Man, Mathematica, and more...



SEX AND THE SINGLE IPOD

An off-the-wall look at dating in the iPod Age

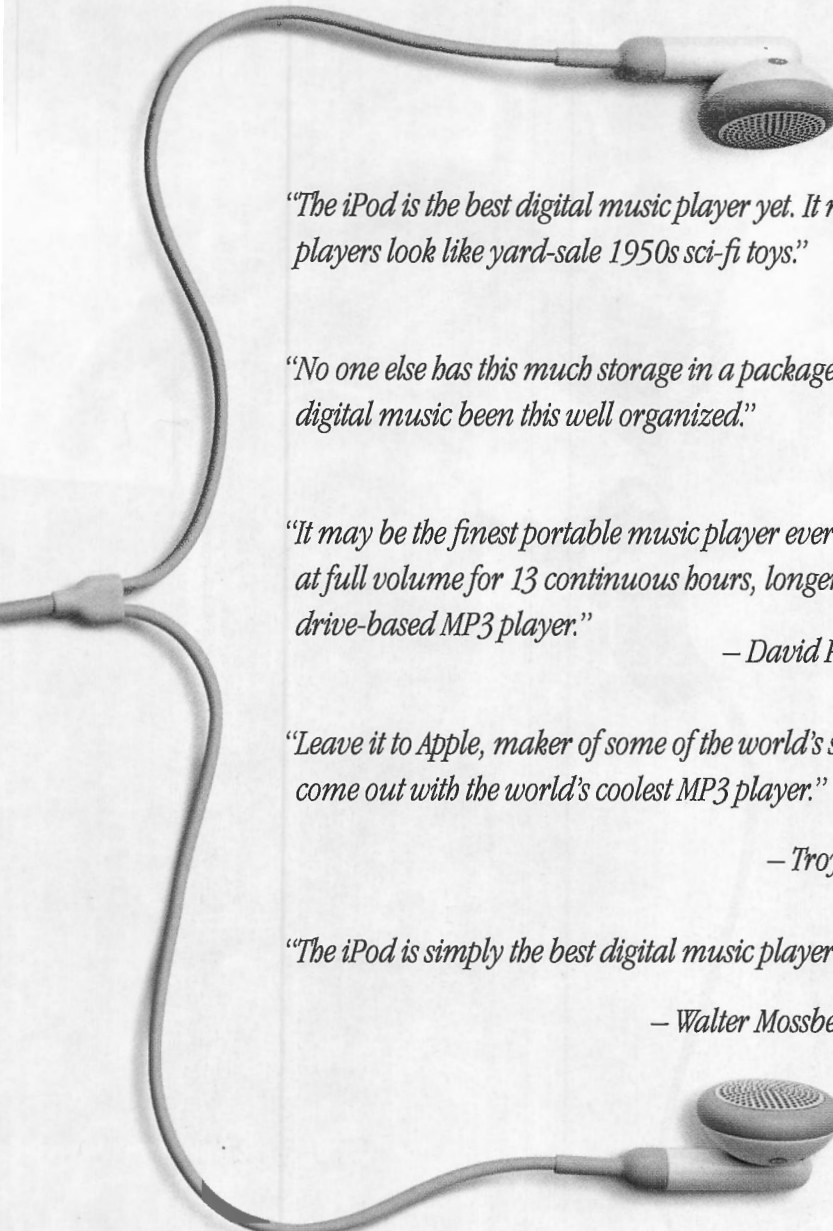


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"The iPod is the best digital music player yet. It makes previous music players look like yard-sale 1950s sci-fi toys."

— Steven Levy, Newsweek

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— Chris Taylor, Time

"It may be the finest portable music player ever built. My iPod cruised at full volume for 13 continuous hours, longer than any other hard-drive-based MP3 player."

— David Pogue, The New York Times

"Leave it to Apple, maker of some of the world's sleekest computers, to come out with the world's coolest MP3 player."

— Troy Dreier, pcmagazine.com

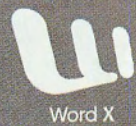
"The iPod is simply the best digital music player I've seen."

— Walter Mossberg, The Wall Street Journal

now has a big brother: 2,000-song capacity. New features like EQ presets and Contact Lists. Same fits-in-your-pocket size.

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highlights

SPECIAL REPORT: Your Hands-On Guide to the Digital Good Life

20 Good-bye, Film

Want to know which digital camcorder or camera to buy? Still can't figure out the difference between an aperture and a shutter? We answer all of your pressing questions in our guide to these digital devices—plus, we let you in on our supersecret napkin trick for taking great party pix.

by Kris Fong and Andrew Tokuda



35 Pick the Right PDA

Palm may be the dominant name in handhelds, but it's not the only game in town. Nowadays, even a Pocket PC-based PDA works with your Mac. So what's the best way to go? We provide advice and guidance.

by Andrew Tokuda



40 Find Your MP3 Mate

If you really want to get a digital life, it's time to ditch that crappy ol' Walkman once and for all. We show you the full range of portable MP3 players available today, and help you pick the one that fits your own digital lifestyle.

by Kris Fong



44 Memory Lane

If you don't know your CompactFlash from your Memory Stick, check out our visual guide to compact storage.

by Frank O'Connor



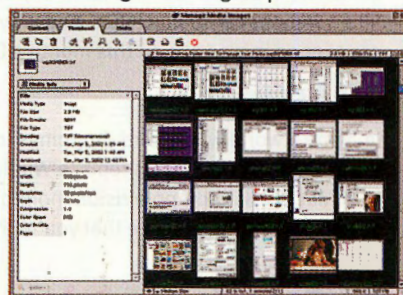
how to

64 Manage Your Media

Got files? All those digital photos, MP3s, movie files, and tailored resumes that litter your hard drives, CD-Rs, and Zip disks can make you feel like a disorganized digital pack rat.

No longer. We show you how to get your files in order quickly and easily so you can find any file—even if it's no longer on your hard drive. by Leigh Webber and Kris Fong

Dude, where's my car.tif?



70 Add Intrigue to Photos with Plug-Ins

We could tell you how to spiff up your snapshots with an image editor until we're blue in the face, but if you're looking to give a photo a compositional makeover, you can alter it with plug-ins. We show you nine ways to revamp images using nine different plug-ins. by Kris Fong



Plug into flower power.

74 Light Up Your Pictures

Bad lighting can ruin good work. If you're looking to up the quality of your images, we show you the basics of lighting for photo and video work, and tell you what equipment you need to get the best shots. by Leigh Webber



C'mon, baby, light my furniture.



Cover photo by Mark Madeo.



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every month

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Media moguls want to rip you off. Lawmakers want to help them.

10 The Disc

This month's Disc has it all—and more. Get a playable demo of the gorgeous game, *Giants: Citizen Kabuto*, plus a demo of *Universe 4.0*, the pro special-effects app that helped create *Star Wars: Special Edition* and *Terminator 2*. Check out *Nova*, the third game in the addictive *Escape Velocity* series, and play around with *Splat*—Photoshop filters were never so much fun. And oh yeah—there are over 40 more apps on this month's Disc.

12 Letters

Imagine a world where bird droppings look like Apple logos, IT pranksters replace Windows with Mac OS 8, and AppleVision monitors get sawed in half. Then realize that you're living in that world.

14 Get Info

Where does Apple get more love and worship than a rock star? Japan. This month we bring you highlights from Mac Expo Tokyo. Looking to chat? We break down your Instant Messaging options. And we show you the latest in digital cameras and skinning QuickTime.

18 Scrapbook

This month we dissect the iPod and show you its guts, brains, backbone—and other private parts.

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Mac games enjoy a 1980s revival. Delta Tao updates an old favorite with *Return to Dark Castle*, and Monkey Byte's *Galactic Control* satisfies that ancient craving for *Space Invaders*. Plus, Freeverse brings you cutting-edge card games, and CyberExtruder puts your 3D-modeled mug into the game.

78 Ask Us

This month we get a handle on your new iBook, fix your file-modification dates, salvage forgotten root passwords, control Software Update, run Unix disk-repair utilities, and more. Plus, check out our shareware picks for guitar players.

96 Shut Down

Are you wasting precious time and beer money in a futile search for Mr. or Ms. Right? With our revolutionary iDate Pro software, your iPod can help.

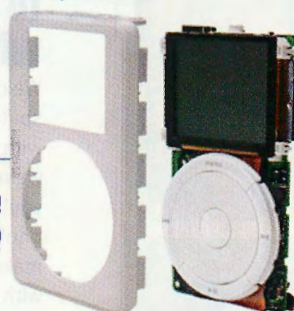
I date, therefore iDate.



Heeeeere's Rikky!

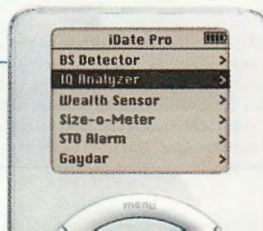


FireWire-breathing Godzilla ships with a miniature Raymond Burr.



The iPod exposed!
(Rated NC-17)

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MacAddict

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editor's note

A message from the kernel.

Have you ever ripped an MP3 file from a CD you've bought? Created a cassette tape from that same CD so you could listen to it in your car? Downloaded MP3s from your Mac to your iPod? Taped a TV show for viewing at a more convenient time? How about skipping through those annoying promos at the beginning of a DVD?

A powerful coalition of music, movie, and television honchos, aided and abetted by industry-friendly lawmakers, is working feverishly to turn you into a criminal.

Their approach is two-pronged. Their first foray into restricting your rights was the Digital Millennium Copyright Act (DMCA), passed in 1998, which made it a crime to circumvent copy protection—even for music, videos, and electronic books you bought with your own hard-earned cash, and even if your only reason for circumventing that copy protection was to transfer content from one device to another. Sure, it's still legal—today—to make copies for your own use, but only if the CD or DVD manufacturer explicitly allows you to do so. If a disc is copy protected (and the music and movie industries are rapidly moving in that direction), it's now illegal to circumvent that restriction to make even a legal copy. So much for the doctrine of fair use that protected consumers back in the 20th century.

A powerful coalition is working feverishly to turn you into a criminal.

As if the DMCA weren't bad enough, the anti-fair use forces have just rolled out a bigger gun: the Consumer Broadband and Digital Television Promotion Act (CBDTPA). If passed by Congress, the CBDTPA will not only reaffirm the anticircumvention provisions of the DMCA, it will also stick the fed's fingers even deeper into our digital hubs by requiring that all digital devices—all—be manufactured in compliance with federally mandated copy-protection and security standards. If the feds control what copy-protection scheme the industry will use, say good-bye to innovation. And if media companies control what you can



Rik's CDs need no additional protection.

copy, when, and to what devices, that will effectively gut fair use.

The implications extend far beyond your favorite CD of Big Head Todd and the Monsters or *Sex in the City* compilation DVD. Electronic books are on the way—but will libraries be permitted to lend them free to patrons? Not bloody likely. And it's not just music, movies, television, and books that the new strictures will, ahem, "protect." If it's illegal to circumvent copy protection, reverse-engineering of computer chips and applications will become a crime. Say good-bye not only to innovation and competition, but also to interoperability: This will prevent engineers from figuring out how to get new products to work with industry-standard—but copy-protected—applications and networking protocols.

Now, don't for a minute think that I'm in favor of piracy. As a former pro musician, and as a guy who makes his living creating copyrighted content, I'm 110 percent in favor of creative types getting their fair rewards. I agree with Steve when he says, "Don't steal music." But giving the government and media conglomerates total control over using stuff I've bought and paid for, fair and square? Or being forced to view commercials every time I watch a DVD? No thanks.

There's hope, though. A newly formed consumer-rights group, DigitalConsumer.org (www.digitalconsumer.org) is fighting the good fight to keep fair use alive. Go to its Web site and read the proposed Consumer Technology Bill of Rights. If you agree with these oh-so-reasonable proposals, get in touch with your congressperson. Today.—Rik Myslewski

Staff Rants



Kris Fong

Text Oppressor

Q. Who's more threatening to artists, record-company execs or music-pirating users?

A. The execs, obviously! Not only do these chuckleheads

pocket more CD dollars than artists (who get mere pennies on the buck), they have the power to play career puppeteer. At least illegal downloads can inspire new fans to buy concert tickets and T-shirts—things that give artists a heftier chunk of the pie.

Q. Has your use of MP3 caused you to buy more or fewer CDs?

A. More. Without MP3.com (or the infamous Napster), I would never have thought about buying an Alicia Keys or Train CD. Then again, downloading a couple of tunes prevented me from buying Aerosmith's *Just Push Play*, because it just plain sucks.



Jenifer Morgan

Polly-Want-a-Whip-Cracker

Q. Who's more threatening to artists, record-company execs or music-pirating users?

A. Show me a record company that encourages the growth of music as an art form, and I'll

show you happy artists. Unhappily, that would still leave the film industry open to J.Lo.

Q. Has your use of MP3 caused you to buy more or fewer CDs?

A. Well, Top Ramen has made it into my cupboard for the first time since college. There's only one explanation for that.



Narasu Rebbapragada

Free-Track Advocate

Q. Who's more threatening to artists, record-company execs or music-pirating users?

A. Record-company execs. In the end, those who refuse to recognize the inevitability of

peer-to-peer music sharing—and to modify their business models accordingly—are the ones who will hurt the artists.

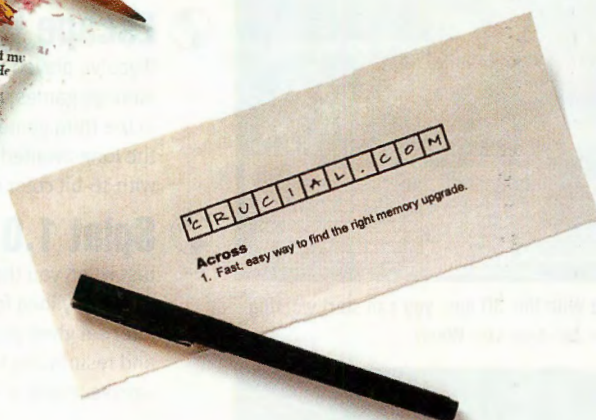
Q. Has your use of MP3 caused you to buy more or fewer CDs?

A. Having said that, it's true that I've bought fewer CDs.



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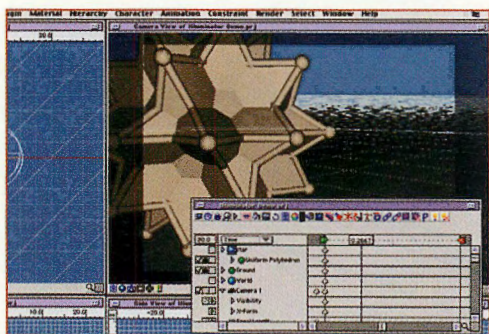
The Memory Experts™



From games to graphics, this Disc is packed with enough fun stuff to last you a month.



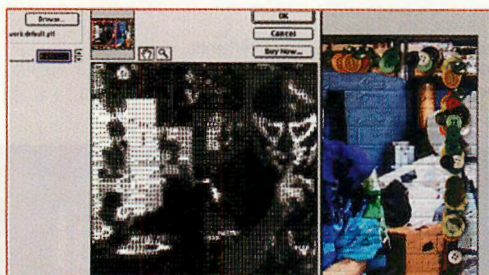
Giants: Citizen Kabuto: Battle bad-ass beasts in this action-packed—and surprisingly funny—game.



Universe 4.0: With this 3D app, you can start working on your own Jar-Jar-free *Star Wars*!



Escape Velocity: Nova: As a rookie space traveler, you have much to learn before you can rule the galaxy.



Splat: From funky borders to ASCII art, Splat puts the fun back into Photoshop.



Giants: Citizen Kabuto 1.0 Demo

Giants: Citizen Kabuto was the first commercial Mac OS X-only game. You'll be glad you've switched to the new OS when you load this gem. Full of action, beautiful graphics, and comedy (with a decidedly British slant), this demo gives you a glimpse of what's available in the full version, which allows you to play two other races of characters.



Universe 4.0 Demo

Maya may be grabbing more 3D headlines, but here's a quiet giant that created special effects in movies such as *Star Wars: Special Edition* and *Terminator 2*. Electric Image's Universe—a suite of 3D tools that includes Modeler, Animator, and Camera—will give you a taste of the same tools Hollywood has used for major motion pictures...without having to move to L.A.



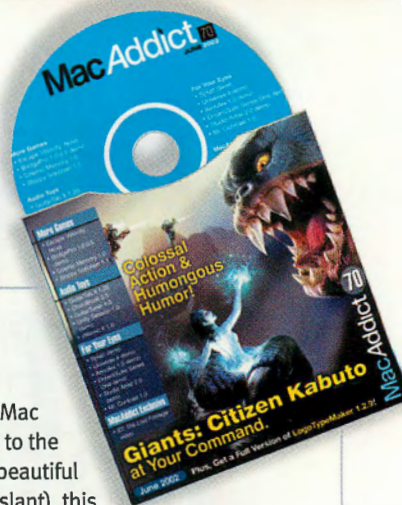
Escape Velocity: Nova 1.0

If you've played the first two of Ambrosia Software's Escape Velocity space strategy games, mark off a month on your calendar—it's time to immerse yourself in the third game in this highly addictive shareware series. Escape Velocity: Nova, the long-awaited follow-up to the first two Escape Velocity games, is improved with 16-bit color and all-new story lines.



Splat 1.0 Demo

Just when you thought those crazy cats from Alien Skin Software had come up with every idea for Photoshop plug-ins, they hit you with a nice, hard Splat! This filter set gives you frames—realistic wooden ones, mattes, even masking tape—and resurfacing textures that make your images look like they were painted on canvas, made of leather, or sprayed onto brick walls.



Watch as this man transforms a musical composition before your eyes (and ears).

Exclusive! A full version of BlueLine Studio's ultracool LogoTypeMaker 1.2.9, available only to you lucky MacAddict readers. This nifty utility displays any string of text in all your currently installed fonts.

We had such a phenomenal response to our March interview video with remixer/producer BT that we dug into our vault for even more footage. Watch as this modern Renaissance man transforms a track from a breakbeat rocker into a four-on-the-floor dance mix. This is never-before-seen footage any dance remixer will die for.

If you don't receive the Disc with your copy of MacAddict, you might want to consider upgrading! Each monthly Disc contains cool demos, useful shareware and freeware, and the inimitable MacAddict staff video. To get 12 issues of MacAddict that include this value-packed Disc with your subscription (prorated if necessary) for just \$10 more, call 888-771-6222—the operator will take care of everything.

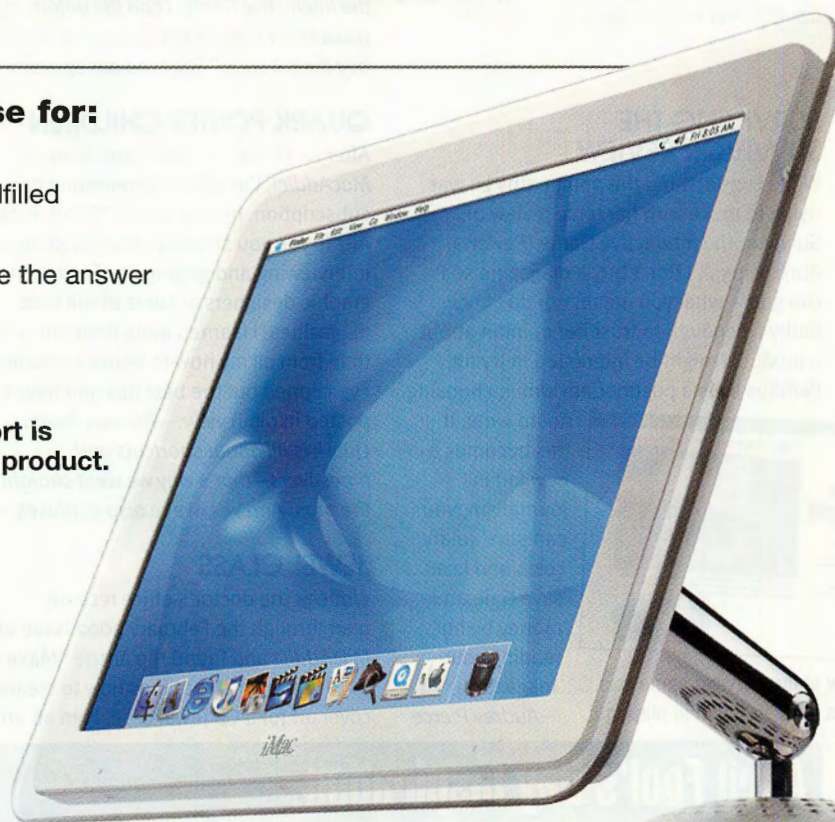
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SURVIVING THE SURVIVOR REVIEW

While I understand the point Cathy Lu was trying to make with her terse review of *Survivor: the Interactive Game* (Reviews, Apr/02, p55), I don't buy a magazine so I can guess what you mean, nor do I know Cathy Lu enough to trust her opinion about a product I might be interested in trying. Perhaps Lu is a postmodern writer, choosing

not to write. If this becomes a new fad in journalism, you can save salary costs and I can save time and money by not reading your magazine.

—Audrey Pierce

Since you don't trust our words, here's a reader comment that appeared in our readers forum (www.macaddict.com/forums): "Unfortunately, Cathy is 100 percent correct with her review of *Survivor: the Interactive Game*. I had the unfortunate pleasure of playing that [expletive] game, and boy does it suck." The tribe has spoken.—Ed.

QUARK POSTER CHILDREN

After receiving the April 2002 issue of *MacAddict*, I'm definitely renewing my subscription. In your article "Quark Pros Tell All" (p30), you showed absolute genius in interviewing and getting tips from the top graphic designers at some of the best magazines. I learned more from this article than from all my how-to books combined. I've clipped out the best tips and have them posted in plain view.—Thomas Neveu
Quark is all about shortcuts and timesavers—that's why we went straight to the pros. And yes, we're also geniuses.—Ed.

JEWEL CLASS

While at the doctor's office recently, I read through the February 2002 issue of *MacAddict* and found the article "Make a CD Gift" (p31), which outlines how to create cover art for a CD jewel case. I am an art and

Recently Sighted



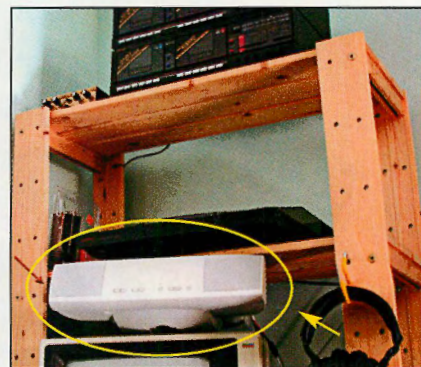
Never in my wildest dreams did I imagine I'd photograph a bird-dropping on my car windshield, but it looks strikingly similar to a certain logo in the upper-left corner of my computer screen.—Mike Rosenberg

photo teacher in the Baltimore County public school system. Would you give me permission to use the idea in my classroom, please?—Kenneth Shearman
Sure, have fun. Just humor us and give your students a little lesson on owning all the music they give away.—Ed.

WHY YOU SHOULDN'T THROW ANYTHING AWAY

When my old Applevision monitor died, I threw out the top portion with the monitor but saved the bottom portion with the speakers in it. I recently set up some audio equipment, and I needed some temporary speakers, so I decided to use the Apple monitor's speakers (see below). I now have 300 watts per channel screaming through these babies—great for monitoring records and tapes on their way to becoming CDs.

—Paul Jay



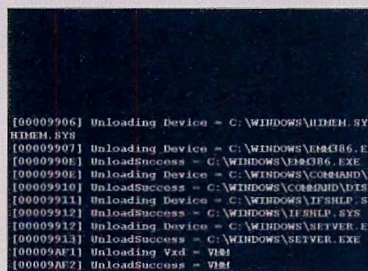
The bottom half of this Applevision monitor makes a nice set of speakers.



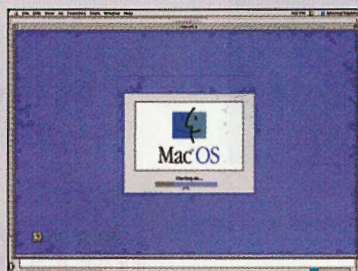
Our review of the *Survivor* game was as terse as our enjoyment in playing it.

April Fool's Day Inspiration

My friend and I manage a Novell network at a Texas university. I brought in my April issue of *MacAddict* to plow through the pranks in the "April Fool's" article (p36). We read your prank about making a Windows PC look like a Mac, and we took the joke to the next level. We used ConsoleOne to add a line to the Novell log-in scripts of a few select people (those who can take a joke). The action launched Internet Explorer in kiosk mode (for maximum effect) and pointed people's browsers to the site www.yaromat.com/mac08 (see below), where the browser window made it look like the network was uninstalling the Windows operating system and replacing it with Mac OS 8. Unsuspecting victims never knew what hit them.—Name withheld for fear of losing cushy job



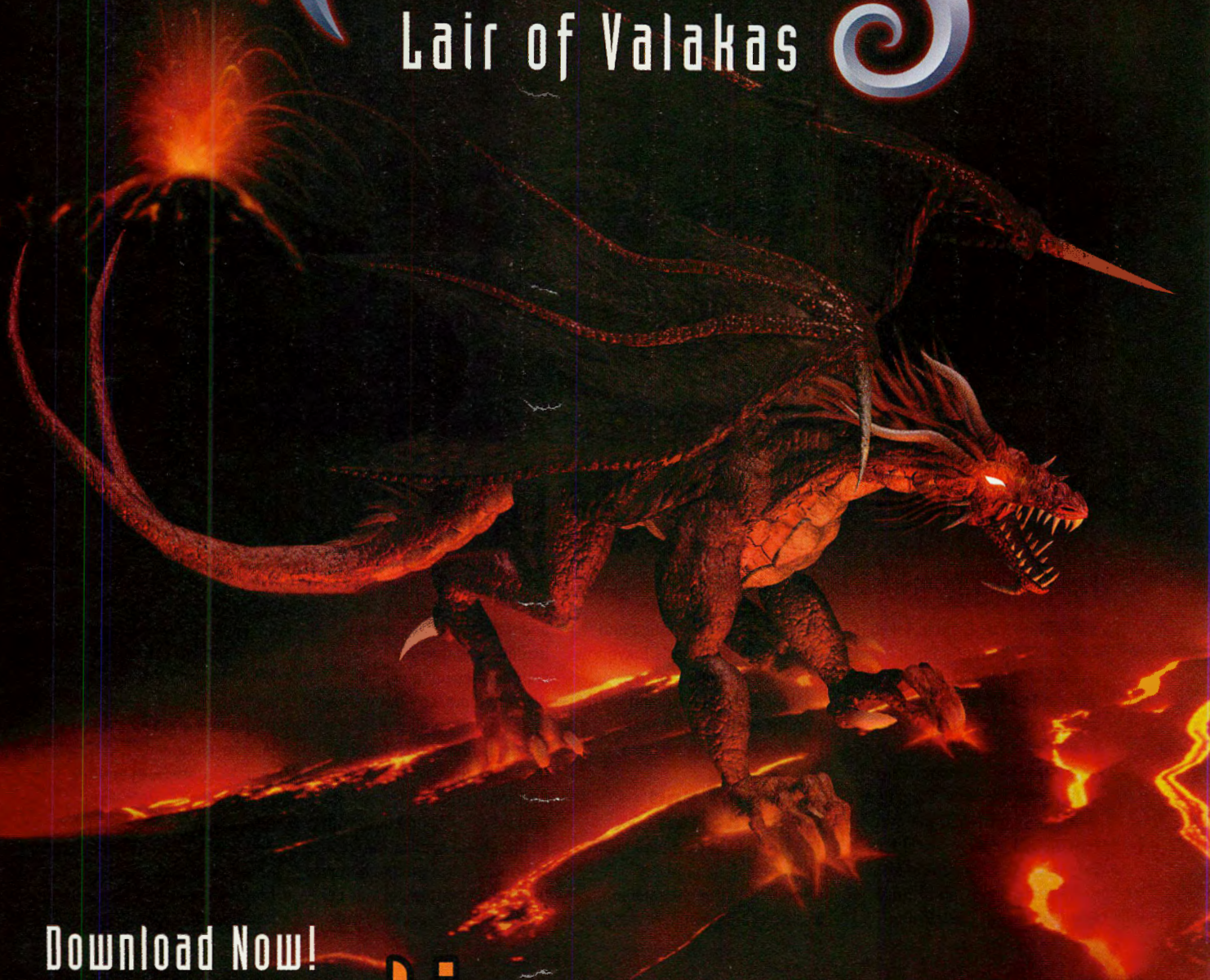
First unsuspecting Windows victims watched their operating system vanish...



...then they found Mac OS 8 installing itself on their machines.

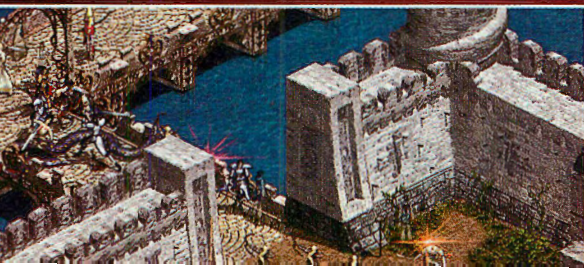
Lineage

Lair of Valakas



Download Now!

www.lineage.com



For more information, subscription fees, downloading Lineage or acquiring a CD, go to <http://www.lineage.com/>. Internet connection and online fees required. Mac OS X v10.1.2 © 2002 NCsoft Corp

get info

The news of the month in bite-size chunks.



Apple: Big In Japan

What's New from Mac Expo Tokyo 2002

The Mac Expo in Tokyo is a different animal from the Mac Expos in New York and San Francisco. With an attendance two to three times that of its U.S. counterparts, areas of the show floor (which is actually smaller than Expo floors in the U.S.) have an open-air market feel. Bullhorn-wielding retailers hawk everything from software to cell phones, and Expo attendees pack in like

sardines to see the latest and greatest. At this year's Tokyo Expo, we saw some of the coolest gadgets ever, and we're hoping some of them make their way to North America.

Of Fonts and Cell Phones

The Tokyo Expo keynote hit two hot topics: fonts and cell phones. The three Japanese character sets (Kanji, Hiragana,

and Katakana) have kerning, leading, and tracking complexities unknown to Western fonts, so Adobe showed off InDesign's ability to work with Japanese text and characters. Also, long-time Japanese Mac developer Ergosoft (www.ergo.co.jp) dazzled audiences with EGBridge, an application specifically designed to enhance the built-in features of Mac OS X's Japanese character input.

FileMaker (www.filemaker.com) thrilled cell phone fanatics with FileMaker Mobile for Mac OS X. The crowd murmured and whispered (the Japanese equivalent of a crowd roar on Super Bowl Sunday in the U.S.) as FileMaker demonstrated working with databases directly from Japan's i-mode cell phones. This popular line of cell phones from Japanese telecommuting

Announced in Tokyo

Apple's own product announcements were less flamboyant than the spectacle on the show floor but substantial nonetheless.

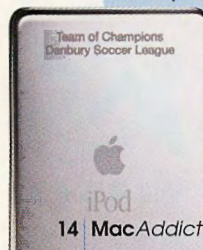
10GB iPod Apple rolled out its new 10GB iPod (\$499, www.apple.com) with an option for custom laser engravings if you order from the Apple Store (\$49, <http://store.apple.com>). A new Contacts feature lets you store 1,000 names and addresses in addition to your music. As of this writing, Apple still sells the 5GB iPod for \$399.

Apple Cinema HD Display Apple also unveiled the 23-inch, \$3,499 Cinema HD Display. The display has a 1920-

The Cinema HD Display's 16:10 aspect ratio easily fits 11-by-17-inch print layouts.

by-1200-pixel resolution—good enough to accommodate high-definition television (HDTV). With 16.7 million colors and a 160-degree viewing angle, this LCD sits at the top of Apple's display line, which still includes the 15-, 17-, and 22-inch sizes.

Bluetooth for Mac OS X Apple showed off its new Bluetooth technology, which allows Macs to communicate wirelessly to Bluetooth-enabled portable devices like PDAs and cell phones. A preview version of the software is available at www.apple.com/bluetooth, and Apple is selling the D-Link DWB-120 Bluetooth USB Adapter for \$49.



new STUFF

Apple Remote Desktop

Apple, www.apple.com,
\$299 (for ten clients), \$499 (for unlimited clients)

Available: Now

What's New: With this Mac OS X software, teachers and administrators can manage Macs on a local, AirPort, or Internet network—distributing software, communicating with other users, monitoring systems, observing up to 250 screens (on a 4-screen rotation), and even taking control of remote Macs.

Epson Stylus Photo 2200

Epson, www.epson.com, \$699,

Available: Now

What's New: This seven-color printer features archival pigment-based inks, 2880-by-1440-dpi resolution, wide-format paper size, an Adobe PostScript option, USB 2.0, and FireWire.

Logitech KeyCase

Logitech, www.logitech.com, \$99.95

Available: Now

What's New: This wraparound fabric keyboard, complete with function keys, works with Palm handhelds that run Palm OS 4.0 and later and that have the Palm Universal Connector.



Logitech's KeyCase reminds us of when Band-Aids went stretchy.

First Edge

MYOB, www.myob.com/us, \$199

Available: Now

What's New: First Edge lets small or single-person businesses track and transmit (via email and/or PDF files) sales, expenses, invoices, and other business transactions. Unlike MYOB's Account Edge, First Edge doesn't offer the option to buy network licenses for multiple users.

Sharp LL-T1820-H/B LCD monitor

Sharp Systems of America, www.sharpelectronics.com, \$1,199

Available: Now

What's New: This 18.1-inch LCD monitor can display 1 billion colors (more than the Apple Cinema Display), thanks to its 10-bit gamma correction. It also features a 170-degree viewing angle, a slim border for lining up multiple monitors, and two USB ports for peripherals. Since this is a DVI monitor, you'll need adapters to connect it to Macs with VGA and ADC monitor ports.



Sharp's LCD displays 1 billion colors.

Lasso Professional 5

Blue World Communications, www.blueworld.com, \$1,199 (download), \$1,299 (box)

Available: Now

What's New: Blue World adds built-in security, an embedded MySQL database server, a comprehensive administration interface, and other features to its application for building and serving data-driven Web sites.



Tokyo wowed Expo goers with the FireDino FireWire hub (left), the Beer Server G3 pony keg (center), and iMac confectioners candy (right).

powerhouse DoCoMo offers color displays and a variety of email, Web-browsing, and contact-database features.

Apple's announcements were interesting but not earth-shattering (see "Announced in Tokyo," p14).

Eye-Popping Prototypes

Mac Expo Tokyo had its fair share of products-in-progress. IMTB, a research division of Sanyo (www.sanyo.co.jp), brought two prototypes to the floor to gauge public interest. The Zabuton—which means cushion, or pillow, in Japanese—is an iMac docking station with a dedicated bay for your iPod. IMTB also showed off a boom box-style case with two speakers. Just insert your iPod, and it becomes a standalone music player.

Hubba Hubba

We were particularly enamored with a FireWire hub shaped like

Godzilla. Approximately 9 inches tall, the FireDino Hub, distributed by Sunco Ltd., includes three FireWire ports along the figure's back, and—giving it an extra dose of cool—a blue light shining out of the mouth.

Show Off Your MUG

In a crowded area of the show floor, Mac User Groups (MUGs) showed off their smarts and sass. The Mishima MUG showed off the Beer Server G3, a Blue-and-White G3 that had its insides replaced by a 2-liter Draftmeiser pony-keg. Another MUG, the Chamber of Fussiest People, unveiled a fully functional iMac G4 repainted black, and the MacFriends MUG showed off an iMac G4 carved from a block of confectioner's sugar.

In the loud, proud culture of Mac Expo Tokyo, enthusiasm ran rampant and the technology looked like pop art, reminding us that Mac enthusiasm is a worldwide phenomenon.—Bryan Chaffin

PHOTOGRAPHY BY BRYAN CHAFFIN

droolWORTHY

Sexy Stuff We Can't Wait to Get Our Mitts On



Imation's portable RipGo CD-R takes burning to new places.

RipGo

Imation	www.imation.com	\$299
---------	--	-------

Oh, the places you'll burn with Imation's RipGo mini CD-R burner and digital-audio player, which weighs about 8 ounces and fits in your palm at 4 1/2 by 3 inches and just 3/4 inches thick. The RipGo plays MP3s and CD audio, and burns audio and data files via USB onto 185MB mini 8mm CD-R discs.—NR

iMP-350 SlimX

iRiver America	www.iriveramerica.com	\$199
----------------	--	-------

Keeping on our CD diet plan, the iMP-350 SlimX CD player is less than 3/4 inch thick. Able to play audio and MP3 CDs, the SlimX boasts an FM tuner, an EQ, and a whopping 23 hours of battery life. A cute four-bar LCD remote with backlight displays not only song and album titles, but also lyrics if your CD has the info.—NR

Indulge in your own personal karaoke by singing along to the song lyrics displayed on the SlimX's LCD.



PHOTOGRAPH BY MARK MADON

Shareware Pick of the Month: Tattoo

PRICE: \$23 URL: www.feelorium.com



Find Tattoo 1.0.3 on the Disc.

There's more than one way to skin a QuickTime movie, thanks to Feelorium's Tattoo, which nestles QuickTime windows within the confines of your custom graphics. Simply whip up some art in a graphics application, drag the QuickTime-compatible image (JPEG, GIF, TIFF) to the Tattoo window, and presto chango—the program takes your art, turns parts of it transparent, and even lets you add QuickTime control buttons (like Play and Mute). You'll need QuickTime 5 or later to Tattoo you.—Andrew Tokuda



Real tattoos should be this painless. We created this skin in less than 5 minutes.

It's Raining Cameras

New Digital Cameras Come in All Shapes and Sizes

Inspired by the 2002 Photo Marketing Association (PMA) conference in Orlando, Florida, camera manufacturers unveiled a wide range of digital cameras for all kinds of photography. We shutter to think what you'll do with them.—NR



Lumix DMC-LC5

Panasonic, www.panasonic.com, \$899.95
Available: Now

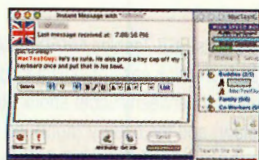
The 4-megapixel DMC-LC5 offers 3x optical zoom and 2x digital zoom. The camera incorporates a Leica-brand lens and Pentax's Mega Burst, which takes eight consecutive pictures per second in Standard mode. This USB camera accepts MMC and SD memory cards as well.

Hey, Look! IM Chatting

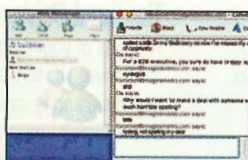
Instant-Messaging Apps for Mac OS X

Email can't compare to the instant gratification of instant messaging (IM). Here, we dissect five free IM options for Mac OS X users. The first three—America Online Instant Messenger, MSN Messenger, and

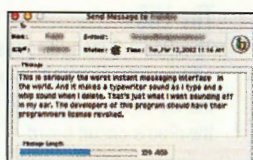
ICQ—are proprietary, so you can only talk to other users of that IM service. The last two—Proteus and Fire—let you use other proprietary IM services (like AIM and MSN) in one interface. So get busy and get chatting.—CL



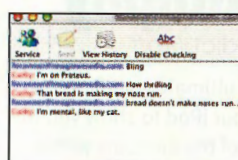
AOL Instant Messenger
4.5.494 beta (AIM) AOL
www.aim.com



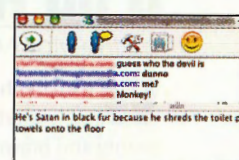
MSN Messenger 2.1.0
Microsoft
http://messenger.msn.com



ICQ 3.0X beta
ICQ
www.icq.com



Proteus 1.5
Alien Technology
www.indigofield.com



Fire 0.3.0
Epicware
www.epicware.com

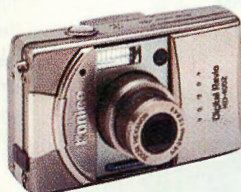
WORKS WITH WHAT SERVICES?	AIM	MSN Messenger	ICQ	AIM, ICQ, Jabber, MSN Messenger, Yahoo	AIM, ICQ, IRC, Jabber, MSN Messenger, Yahoo
WHAT'S MY USER NAME?	Whatever you want, if it's not already taken.	Sign up with your email address and choose any available display name.	Sign up with your email address; ICQ assigns you a random number, so pick a nickname.	Whatever you want for each account you set up.	Choose whatever screen alias you want.
WHAT CAN I CUSTOMIZE?	Buddy icons, fonts, and text colors. Plus, your text can talk.	Fonts and text colors.	Fonts and text colors. Plus, your text can talk.	Toolbars, window transparency, fonts, text alignment, colors, and more.	Fonts, text colors, Dock options, and toolbars.
HAS CHAT ROOMS?	Yes.	Yes.	Yes.	Sort of. You can broadcast messages but you can't chat directly.	Yes, provided the IM services you're using support them.
TRANSFERS FILES?	Yes.	No.	Yes.	No.	No (the menu option doesn't work).
SUPPORTS EMAIL?	Yes.	Yes.	Yes.	No.	No.
OUR OPINION	We like the customizable stock ticker.	We like that it tells you when other users are still typing, so you know they aren't ignoring you.	ICQ is a window-management nightmare and makes a horrific typing sound when you write messages (though you can turn this off).	The spelling checker is nice, and the Dock alerts you to new messages, but the app stupidly lets you send messages to offline users, who can't receive them.	We like the spelling checker, Dock customization, and automatic software updaters.



Optio 230

Pentax, www.pentax.com,
\$299 street
Available: Now

This 2.0-megapixel camera features a 3x optical zoom with 2.5x digital zoom, a variety of shooting modes (such as Night Scene), and image transfer via USB and CompactFlash media. And shooting in the stereoscopic 3D Image mode gives objects depth and dimension when looked at with the included 3D image viewer.



Digital Revio KD-400Z

Konica, www.konica.com,
\$499
Available: June 2002

This compact 4.13-megapixel camera with 3x optical zoom and 2x digital zoom measures 3.7 inches wide by 2.2 inches high by 1.2 inches thick. It transfers images via USB or SD and MMC memory cards. It also comes with Photoshop Elements.



Olympus D-380

Olympus,
www.olympus.com,
\$199 street
Available: Now

This low-priced 2-megapixel point-and-shoot camera comes with a 5x digital zoom (no optical zoom) and USB autoconnect. The D-380 accepts SmartMedia cards, lets you merge two shots into one, and offers panorama options.



PowerShot S330

Canon, www.usa.canon.com, \$499
Available: Now

This 2-megapixel compact camera offers a 3x optical zoom, color and black-and-white photography, a software bundle, and an Intelligent Orientation sensor that figures out whether to display images vertically or horizontally. It takes CompactFlash cards.



Cybershot DSC-P9

Sony, www.sonymstyle.com/digitalimaging, \$600
Available: May 2002

Sony's new, compact 4-megapixel camera transfers pictures via USB and Sony's Memory Stick. Its AF (Auto Focus) illuminator mode with infrared lets you take pictures in darkness, and its multiframe burst mode takes up to 16 consecutive pictures.

scrapbook

Learn what's on the inside without voiding your warranty.

iPod Autopsy

by the MacAddict Staff

We made the ultimate sacrifice. We took apart our iPod to show you the beauty and brawn of the anatomy within.

The LCD

The iPod's 2-inch (diagonal), 160-by-128-pixel LCD clips to the top of the metal shield on the iPod's circuit board.

The Hard Drive

The guts of your iPod are in its 5GB Toshiba MK5002MAL ATA/66 hard drive. The tiny 0.20-inch-thick case houses a single 1.8-inch disk, and is sandwiched between rubber shock absorbers on the circuit board (below) and the battery (right), so the drive won't crash given even the most turbulent digital lifestyle.



PHOTOGRAPH BY MARK MADEO

The Jog Dial

We were too chicken to remove the Jog Dial entirely from the circuit board. (We wanted to have some hope of putting our iPod back together.) The dial is firmly affixed to the circuit board by four plastic pins (see Little White Dots, below).

The CPU

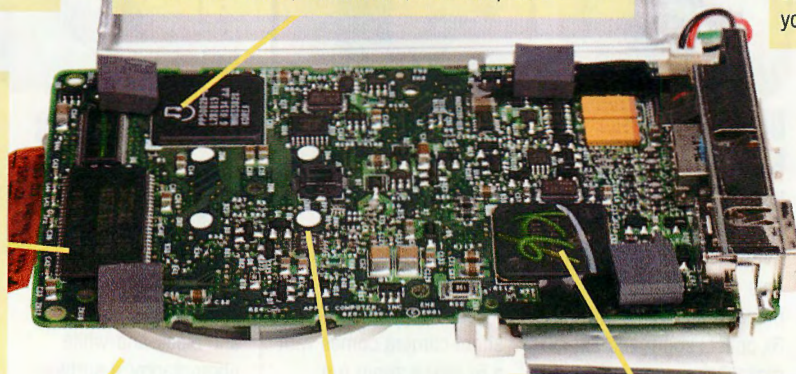
The brains of the iPod, this PortalPlayer PP5002B chip offers dual 32-bit ARM7TDMI processors capable of running at 90MHz. They support MP3 encoding and decoding, as well as audio-processing effects like EQ and bass boost. ARM, the Oxford, England-based company that created these processors, also makes processors for other portable products like mobile phones, PDAs, and set-top boxes.

The Battery

The ultraslim Sony Fukushima battery is only about 0.11 inches thick. Stacked underneath the Toshiba hard drive (above left), this 4.15-volt rechargeable Lilon polymer battery plugs into the circuit board (below left) to give you 10 hours of playtime.

The Memory

The iPod's buffer memory is the other reason your music plays smoothly during your morning trail romp. This Samsung K4S561632C 32MB SDRAM chip is high speed (100MHz) and low voltage—ideal for bandwidth- and memory-intensive applications.



The Circuit Board

This crowded little printed circuit board houses the iPod's brains.

Little White Dots

These curious circles are the ends of the four plastic pins that hold the Jog Dial in place (see above right).

FireWire Chip

This Texas Instruments TSB43AA82 is a high-performance IEEE-1394 integrated PHY and link-layer controller. In plain English, this means the chip controls your iPod's FireWire connection.

Connect

TANGO™ FireWire®/USB

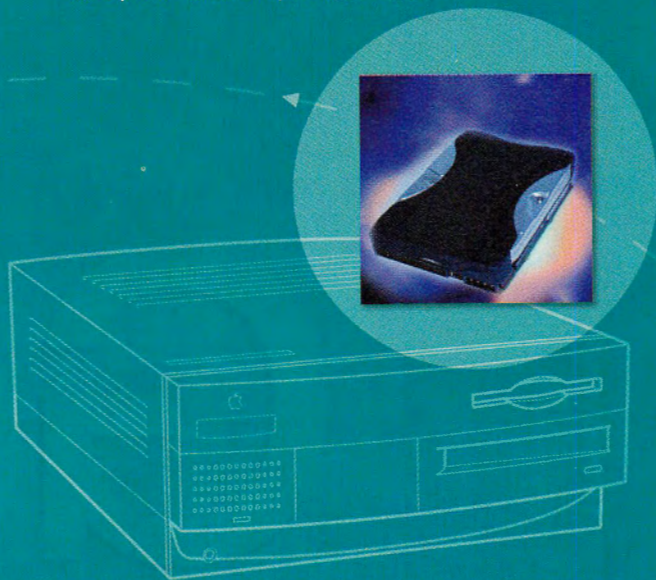
- Macintosh™ combo card installs in minutes
- Compatible with most PCI Macintosh computers
- Supports all industry-standard FireWire & USB peripherals



Adapt

TEMPO™ ATA100

- Macintosh PCI host adapter card
- Conveniently co-exists with SCSI and other pre-existing devices
- Achieve a maximum data transfer rate of 100MB/s
- Add up to 4 internal ATA/IDE hard drives



Expand

HARMONI™ G3

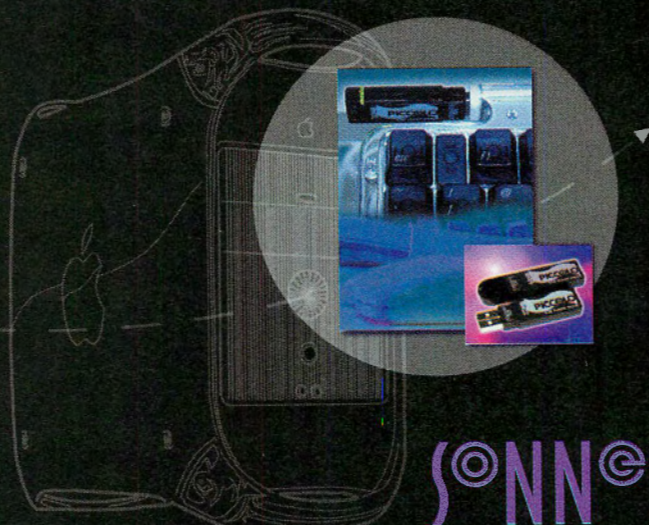
- Onboard FireWire port—connect the latest digital video equipment
- 500 and 600 MHz G3 upgrades for iMac 233, 266, 333 MHz (Rev. A-D)
- Supports iMovie™, iPod™, and other popular applications



Store

PICCOLO™

- Redefines portable storage—about the size of a car key
- 100% hardware and software compatible
- Plugs into any USB port, including Sonnet's Tango FireWire/USB card



For more information visit: www.sonnettech.com

Do it all...

SONNET™
SIMPLY FAST™



Good-Film

CONTENTS

Inside a Digital Camera

So what do the aperture and shutter do anyway? Find out here.
p22

Finding the Right Digital Camera

We profile three types of photographers. Which one are you?
p24

The Photographer's Camera Bag

Your camera plays the lead role, but it needs a supporting cast of equipment.
p26

Inside a MiniDV Camcorder

We show you how different parts of a camcorder come together to make beautiful movies.
p28



Find Panorama Tools 2.5b1, GraphicConverter 4.3 and 4.3 PPC, and tryouts of Adobe Premiere 6.0 and Photoshop Elements on the Disc.

Now that Steve Jobs has ordained the Mac the *digital hub*, it's time to get serious about your digital life. First stop: digital cameras and camcorders.

-Bye,



Finding the Right Camcorder

Whether you're filming your dog or the next *Jurassic Park*, we help you find the right camcorder. **p30**

The Videographer's Camera Bag

Tapes, tripods, batteries—you need 'em, and you shouldn't leave home without 'em. **p32**

by Kris Fong
and
Andrew Tokuda

photography
by Mark Madeo

Digital Cameras

Digital cameras operate pretty much like their film equivalents but in some ways are superior. For instance, you no longer need to kill off a roll of film to get one good image, nor do you have to shell out cash for film and developing. But how do you decide which digital camera is right for you? We shed light on what's what in a typical digital camera, offer shooting tips, and help you figure out what to buy.



FLASH

As you would guess, this doohickey emits a bright flash of light to illuminate dark subjects or eliminate harsh shadows from subjects in bright scenes. Most digital cameras feature various flash modes to provide ideal light.

CCD (internal)

The charge-coupled device is a small image sensor located behind the shutter and aperture that acts as the digital equivalent of film. When light hits the CCD chip, it turns the information into a digital signal, which creates the image. CCDs come in different sizes, usually measured in megapixels (1 million pixels); the more megapixels, the higher an image's maximum resolution, and the larger you can print your photos without quality loss.

LENS

The camera produces images according to what it "sees" through the lens, which is essentially a tube containing a series of curved glass elements. The lens collects light, and its elements focus that light onto the CCD.

APERTURE (internal)

Behind the lens is the aperture, a small opening surrounded by a ring of overlapping thin metal plates that expand and contract to control the amount of light that reaches the CCD. Like your eye's iris, the aperture opens wider to let in more light in low-light situations and constricts to let in less light in bright conditions. The aperture's size is measured in *f-stops*. Larger apertures have smaller *f-stop* numbers (*f*-2.0, *f*-2.8), while smaller apertures have larger numbers (*f*-10.3, *f*-16). This numbering system sounds bonehead backward, but it's easier to comprehend if you think of the notation as a fraction in which the *f* is a 1.

Aperture also controls *depth of field*, or how much of your image appears in focus. A large aperture lets you focus on one subject and blur the areas in front of and behind it (narrow depth of field). A small aperture brings more, if not all, of your composition into focus. Cheap cameras typically have a small, fixed aperture.

SHUTTER RELEASE

You can't have your pic until you snap this. Pressing this button sends a signal to your camera's computer, telling it to open the shutter.

SHUTTER (internal)

The shutter is behind the lens and controls how long the CCD is exposed to light. It functions like your eyelid, opening to let light in and closing to shut light out. The amount of time that the shutter stays open is the *shutter speed*. A fast shutter speed—1/800 of a second, for example—freezes motion, while a slow shutter speed—say, 1/4 second—blurs a moving subject. The more light that enters the lens, the faster the shutter can close to get a good exposure.

OPTICAL VIEWFINDER

If you don't use the camera's LCD monitor for framing, you stick your eyeball here. Because the viewfinder and lens are in different places, what you see isn't always what the camera sees—especially if the subject is in close proximity. Your subject may wind up off center, a condition known as *parallax error*.

DIOPTER ADJUSTMENT

This feature lets you adjust the viewfinder to accommodate your eyesight, so you can shed your horn rims when snapping pics.

ZOOM

This two-way control signals the lens to zoom in or out of a frame. Optical zoom uses the lens elements to magnify an image—the preferable method. Digital zoom employs mumbo-jumbo calculations that magnify pixels (usually pretty badly) to fabricate a closer-seeming image.

HOT SHOE

This mount allows you to attach an external flash.

LCD MONITOR

A digital camera's LCD displays an accurate view of your frame before you take a photo, shows camera settings, lets you view a freshly snapped pic, and presents images and movies in playback mode.

LIGHT METER

This sensor detects the amount of light in a composition and calculates the average to produce an exposure (a balance of light and shadow). Many cameras feature multiple metering modes to help you get the best exposure for your situation.

What's on the Menu?

The two-finger peace sign and the one-finger salute are universally understood symbols. To avoid confusion, most manufacturers have also adopted universal symbols to represent a camera's modes or features. They include:

FLASH

Fill Flash: Flash always fires.

Auto Flash: Flash fires only when needed.

Red-Eye Reduction: Flash bursts are emitted before the shutter opens to constrict your subject's pupils, thus preventing red-eye.

Flash Off: No flash.

Slow Sync: For backlit scenes. The flash fires to expose the subject, while a slow shutter captures the background.

FOCUS

Macro: Allows focusing at extremely close proximity.

Infinite: Sets the focal length to the maximum (everything's in focus).

AF Auto: Camera automatically locks focus on a subject in the frame's center when you press the shutter button halfway.

MF Manual: Allows you to dictate in feet or meters the distance at which the camera should focus.

SHOOTING MODES

P Programmed: Full auto mode—the camera's smarts control everything.

A Aperture Priority: You control the aperture while the camera sets the correct shutter speed (good for focusing on a specific subject).

S Shutter Priority: You control the shutter speed while the camera sets the correct aperture (good for capturing or freezing motion).

M Manual: You are the master of all the controls.

Movie: Shoots movies (if supported).

Continuous: Shoots multiple stills as you hold the shutter release.

Self-Timer: Camera snaps a pic after an amount of time elapses.

Exposure Compensation: Lets you manually increase or decrease exposure before taking a shot.

Delete: Erases an image.

Unrecognized Media: Your memory card's screwy. Format it.

METERING

Spot: Measures light on a subject at the frame's center point.

Center-Weighted: Averages readings from the entire frame, but places emphasis on subjects in the center region.

Matrix or Segmented: Splits the frame into multiple regions, measures each, and calculates them to create an exposure.

WHITE BALANCE

Custom: Lets you manually measure the light and set the white balance for better color accuracy.

Tungsten: Compensates for a light bulb's orange cast.

Fluorescent: Compensates for a fluorescent light's green cast.

Daylight: Compensates for the sun's blue cast.

Cloudy: Compensates for a hazy sky's cyan cast.

Finding the Right

You Are...

the SOCIAL SNAPPER

▶ You Want To...

...shoot no-fuss family, social gathering, and vacation snapshots; email photos; post photos on the Web; and print pics to frame or share. You're more interested in capturing memories than using a camera to create art.

the HOBBYIST

▶ You Want To...

...shoot pics of people, objects, and vacation sites, but with an artistic eye. You want to showcase your work both on the Web and as framed 8 by 10s on the wall. You're looking for a camera with features that will further your skills as a photographer.

the PRO

▶ You Want To...

...shoot stuff commercially or for art's sake. You're a control freak who needs sophisticated controls and versatile features that allow for broader work opportunities. Image quality is everything. Size matters (to some).

Software You Need...

▶ Freebies

Apple iPhoto (free, www.apple.com)

This digital-photo organizer lets you do a *really* small amount of image-editing, create Web pages, send your pics via email, and keep tabs on your images.

Caffeine Software PixelNance (free, www.caffeinesoft.com)

This highly functional app wraps pro performance tools inside easy-to-digest control windows to fix and enhance pics quickly. It's free and OS X only.

▶ Sub-\$100 Apps

Adobe Photoshop Elements (\$99, www.adobe.com; tryout on the Disc)

This slightly watered-down version of Photoshop proper has everything you need to fix and enhance pics as well as do some creative tweaking. Its wide variety of tools will satisfy novices and pros alike.

Lemke Software GraphicConverter (\$30, www.lemkesoft.com; version 4.3 and 4.3 PPC on the Disc)

This hugely popular shareware app lets you edit and enhance images, as well as use Photoshop plug-ins without the Photoshop expense. It also includes some effects and slide-show tools.

▶ Higher-End Programs

Adobe Photoshop (\$609, www.adobe.com)

This goes without saying; no other image-editing application comes close to what Photoshop can do. If your work involves digital photos and graphics, get this app.

LizardTech Genuine Fractals (\$159, www.lizardtech.com)

For occasions when you need more resolution than the original photo possesses, this Photoshop plug-in can increase resolution while maintaining detail and sharpness via fractal calculations.

Features You Need...

▶ Just the Basics

If you have no wish to print your pics—*ever*—a low-res camera will do; 800 by 600 pixels is adequate for Web and emailing images. However, if you want to print photos, you'll need at least 1.3 megapixels to print photo-quality 4-by-6-inch images. A red-eye flash keeps friends and family from looking like glaring hellions, and a 3x optical zoom brings distant subjects closer (good for travel shots). Portability's a plus for convenient purse or pocket stashing. You also may want a movie mode for taking short bursts of footage.

▶ Higher Resolution

At a *minimum*, you need a 2-megapixel camera to print up to 6-by-8-inch pics, or a 3.34-megapixel camera for printing 8-by-10s. Look for a large-aperture lens for better low-light shots and more creative focusing opportunities, as well as a good range of aperture and shutter speeds with manual controls. A large memory buffer will let you continue shooting instead of waiting for the camera to write a pic to memory. Find cameras that support TIFF or RAW formats to get the cleanest images. You might also consider a slow-sync flash for shooting backlit subjects; a flip-out, swiveling LCD monitor for shooting from above your head or around a corner; and threaded lenses to allow for lens attachments.

▶ SLRs and Lenses

A digital SLR (single-lens reflex) camera with support for interchangeable lenses offers more diversity and produces better-quality images than one with fixed lenses. For maximum versatility, get a 17mm-to-35mm wide-angle lens to capture a greater area, a 28mm-to-80mm zoom lens for normal shooting, and a 70mm-to-200mm long lens to capture distant subjects. If you need to capture detail, look for cameras that include controls such as tone-curve adjustment and selectable color-space modes. Also look for a resolution of 2 to 6 megapixels (depending on your line of work). Photographers who need extremely high resolution should look at 4x5 digital-camera backs, which can pack in upward of 16 megapixels (for \$20,000 or more).

Camera

Instead of buying a camera based on your photography skill level, look for one that fits how you plan to use it. That said, most folks fall into one of three user categories: the social snapper, the hobbyist, and the pro.

Cameras to Consider...

Cheap and Reliable

Olympus Brio D-150 Zoom

(\$275 ESP, www.olympusamerica.com)

Great-quality pics, movie mode, compact, 1.3 megapixels, and easy enough for a monkey to use, the Brio provides snap-happy folks with no-fuss controls, and includes a few bells and whistles for more-adventurous picture taking.



Canon PowerShot A100 (\$279, www.powershot.com)

We haven't gotten our mitts on this just-released cutie yet, but based on our past experiences with Canon cameras, this 1.2-megapixel compact camera sounds like a gem. Plus it packs in the extras (such as movie mode, adjustable aperture and shutter, four flash modes) to encourage growth.



Good-Quality Digicams

Nikon Coolpix 995 (\$599.95, www.nikonusa.com)

This 3.34-megapixel favorite produces immaculate images and recently fell in price, making it a great buy. It also comes with bells and whistles up the wazoo (matrix metering, full manual control, 4x optical zoom, and a swivel lens) for creative work, and auto capabilities for mind-free snapping.



Olympus C-3040 Zoom

(\$599.99 ESP, www.olympusamerica.com)

The C-3040's large f-1.8 aperture, superb image quality, and chunky 3.34-megapixels are worth the cash you shell out. Tons of features, a huge memory buffer, and great manual and auto controls further enhance its merit.



The Expensive Stuff

Nikon D1H (\$4,500, www.nikonusa.com)

A photojournalism heavyweight offering superb image quality and color accuracy, the D1H has a huge memory buffer to keep you snapping, as well as a 5-fps burst rate. While the D1H is only a 2.74-megapixel camera, its ability to capture frames quickly makes it a must for sports photographers.



Contax N Digital (\$6,999, www.contaxcameras.com)

If clarity and tone are invaluable to you, this SLR features a full-frame 24mm-by-36mm, 6.29-megapixel CCD to capture the highest degree of detail (other comparable CCDs measure a scrawny 15.6mm by 23.7mm). It also comes jam-packed with ultrasophisticated controls, FireWire support, and five-point autofocus.



Tips You Can Use...

Tricks for Focus and Flash

- Snapping your black pooch? Cameras have a hard time focusing on dark, monochromatic objects—and fuzz, fur, or hair doesn't help. If your camera can't lock focus, find an object at the same distance from your camera as your subject, center it in your frame, press the shutter halfway to lock focus, reframe your subject, and depress the shutter fully to snap the pic.
- If your flash blows out your pals' faces at parties and other social gatherings, use a white paper napkin to diffuse the blast. Unfold the napkin, drape a portion of it over your flash (but not over the lens), and snap away. If they're still ghostly, fold the napkin to double the layer and snap the pic again.

Getting More Control

- Refrain from using your camera's black-and-white mode. Digital cameras produce flat-looking black-and-white images due to light averaging (for example, converting an RGB image to grayscale in an image editor). Instead, snap a color image, then open the image's channels in an image editor, select one channel (red, green, or blue), discard the other two, and tweak to get richer blacks and whites.
- A cool way to capture motion is to pan the camera through an exposure, which produces an in-focus subject with great motion blur in the background. Set your camera to shutter priority, use a slow shutter speed, and frame your approaching target. When the subject is just in front of you, snap the shutter while quickly pivoting your body and camera to follow the subject, keeping it in frame (this takes practice).

Pro Advice

- Need ultrahigh resolution, but have only a 5-megapixel camera? Stitch multiple stills together to create one large image. Visually divide a scene into four quadrants, set your camera controls, and snap a photo (without altering any settings) of each quadrant, allowing for some overlap. Then use Helmut Dersch's Panorama Tools (version 2.6b1 on the Disc; www.fh-furtwangen.de/~dersch) to stitch the seams and create one flawless, hefty image.
- When shooting dark-colored subjects, it can be difficult to capture detail without blowing out the highlights—especially against a light-colored backdrop. To compensate, use the camera's tone curve to alter the gradation of shadows and highlights. Raise the curve in the dark tones to boost exposure. This allows you to capture more shadow detail while keeping your highlights intact.

The Photographer's

Your camera is the core of your photographic kit, but you'll also need some of these important items in your bag-o'-tricks.

ZOOM LENS

To capture wildlife and other faraway subjects, use a telephoto zoom lens to bring the action up close while you remain at a safe distance.

DISC REFLECTOR (NOT SHOWN)

When shooting people outdoors, use this foldable fabric disc to bounce sunlight onto faces and eliminate any harsh shadows caused by overhead lighting.

WIDE-ANGLE LENS

Don't back into a wall—or off a cliff. If your camera supports lens attachments, a wide-angle lens allows you to capture a greater expanse of a scene or skyscraper.

CLEANING CLOTH

In the great outdoors, you can never be 100 percent sure of the weather. Keep a soft, lint-free cloth around to wipe away raindrops, sand, fingerprints, bird crap, and other gunk from your camera.

CAMERA BAG

You made the investment, so you gotta protect it. You'll need a well-constructed, padded bag made of waterproof, ballistic nylon that's big enough to fit all your gear (get a second, smaller bag for casual shoots). Look for one with a zippered main compartment, as well as smaller zippered areas for storing media cards, extra batteries, and easy-to-lose gizmos.

EXTERNAL FLASH

A flash that you can use both on and off the camera allows you to focus light strategically on a subject rather than settle for the built-in flash.

EXTRA MEDIA CARDS

Instead of having to delete an image to make room for another one, get extra cards with enough megabytes to satisfy your snapping habits (or get a storage device; see above). (For more info on removable media, see "Memory Lane," p44.)

SMALL FLASHLIGHT

When the sun goes down or the lights are low, just try to find that teeny media card in your bag without one of these.

Camera Bag

STORAGE DEVICE (NOT SHOWN)

If you're shooting volumes of photos and won't be near your Mac, take along a storage device like Jobo's Vista (available in 5GB, 10GB, 20GB, and 30GB capacities; www.jobodigital.com), which should be out by the time you read this. The Vista allows you to plug in a media card and transfer images to it. It hooks up to your Mac or TV, and its LCD display lets you view and organize stored pics. Another alternative is Minds@Work's MindStor (available in 5GB, 10GB, and 20GB capacities; www.mindsatwork.net), which isn't as versatile as the Vista but works fine as a dumping ground for photos.

TRIPOD

At slower shutter speeds, camera movement will blur your image (a result of camera shake). For rock-solid framing, mount the camera on a tripod. Outdoors, a sturdy tripod with retractable spikes will keep your setup from sliding on uneven terrain. For indoor duty, any lightweight tripod will do. Of course, it's not always feasible to lug a tripod on, say, a trip through Europe. A *minitripod* is a compact stand you can prop on tables or ledges.

LENS TISSUE

Fingerprints, mist, and smoke can leave residue on your lens, leading to unwanted artifacts in your images. Keep lenses clean by wiping them with a circular motion from the center out.

BLOTTING PAPER

Good to have around for taking portraits, these papers get rid of facial shine. You can also use them to diffuse a strong flash by holding or taping a sheet over the flash.

EXTRA BATTERIES

It would suck if you reached the peak of Everest and the batteries died just before your camera captured the evidence that you made it. Bring a charged spare or two. You can also use alkaline batteries (if your camera supports them), though these tend to run out of juice faster.

ELECTRICAL TAPE

This basic can provide a temporary fix in emergencies (say you break off your camera's battery-compartment door). Electrical tape can also tidy up your composition (use it to tether wayward branches or other oddities out of the frame or to tape down sliding objects).

BATTERY CHARGER

It may be a while before you find yourself in a location with an AC outlet, so recharge drained batteries whenever you can.

AROUND the CORNER

Adios, CCD?

While CCD sensors (charge-coupled device; see p22) are the current rage in the digital-camera arena, camera manufacturers are beginning to take interest in CMOS (complementary metal oxide semiconductor) sensors, typically found in low-res Web cams. CMOS chips require much less power to operate than CCD chips (5 volts compared to about 20), are faster at translating data, and cost about half as much.

CMOS sensors have a reputation for being excessively noisy—not the annoying-neighbor kind of noisy, but the what's-all-that-crap-in-my-picture variety. That's changing, and Canon's leading the way. The company took the scrappy CMOS wafer and performed a full Frankenstein on it to produce a proprietary 3.25-megapixel CMOS sensor that shipped with its \$3,000 EOS-D30 digital camera in October 2000. Canon engineered the chip with on-chip noise reduction, electronic charge transfer, and programmable amplification, thereby virtually eliminating noise. Canon's new 6.52-megapixel CMOS sensor makes its debut with the EOS-D60 digital SLR camera, which should be out by the time you read this (with a \$2,199 price tag).

Other companies like Zoran, OmniVision, Sound Vision, and Foveon have also developed CMOS sensors for digital cameras. Though most fall in the 1.3-megapixel range, Foveon has cranked out a 16.8-megapixel CMOS sensor. These new CMOS breeds feature on-chip processing, allowing them to capture greater image detail in shadows and highlights than CCDs.

In February, Foveon went a step further by introducing the Foveon X3, the first full-color image sensor. This new chip captures red, green, and blue light in *each* pixel, as opposed to a CCD or CMOS sensor's one color per pixel pattern. Offering three times the color resolution of previous digital formats, the Foveon X3 may finally be the one that rivals film. Reportedly, it also eliminates all those color halos we've come to loathe, and captures full-motion video that rivals the results of high-end DV cameras. Sigma will debut the sensor in its SD9 3.34-megapixel digital SLR (no confirmed ship date at press time, although the estimated cost is \$2,999).

Digital Video Camcorders

These days, all you need is a digital-video (DV) camcorder and a Mac to make great movies. It's easy to pick a Mac, since all models have FireWire and iMovie. The tough part is figuring out which camcorder to get. Some of you might consider a high-end DVCAM format with XLR audio, three CCDs, MMC, and SD (whoa there!). Many of you might say, "Just give me something to point at my dog!" We help you with camcorder basics, under-the-hood info, and product recommendations for everyone from the newbie to the next Ron Howard.

BUILT-IN MICROPHONE

Every camcorder has a built-in microphone to record sound. Some mics are flush with the camera's body, while some camcorders put the mic in an appendage. The latter option is generally better—the farther the mic is from the camcorder, the less mechanical noise it will pick up.

SIGNAL PROCESSOR (internal)

The signal processor inside makes sense of all the CCD information for the camcorder. The signal processor records information onto the videotape as binary data and also allows you to see exactly what the camera is capturing via the viewfinder or LCD display.

CCD (internal)

Behind the lens is the charge-coupled device, a silicon chip that captures light information from the lens and stores it 30 times a second in NTSC (for camcorders that accord with the U.S. display standard) as three colors (red, green, and blue). Three-CCD camcorders use one individual chip to record each color, significantly improving image quality.

LENS

The lens captures light and transports it to the CCD. Lenses come in a variety of sizes and styles. Some cameras allow you to change the lens, and some lenses allow you to attach adapters to achieve wide-angle or telephoto shots.





LCD MONITOR

Some camcorders have LCD displays, which generally show the same image you see in the viewfinder, only bigger. An LCD makes videotaping much easier because you can hold the camera away from your head (which you can't do with just a viewfinder). LCD displays generally range from 2 to 3.5 inches.

VIEWFINDER

This is where you view the image from the camera's signal processor. Unlike some still cameras (such as rangefinders and SLRs), where you see the image through a lens or a series of mirrors, what you see in a camcorder's viewfinder is the image that the DV camera records onto the tape. Viewfinders come in color or in black and white. Color's better.



RECORD BUTTON

If you don't press this button, you won't get video (about as basic—and as common—a mistake as leaving the lens cap on). Almost all cameras have a record button near where your right thumb rests. Some camcorders, such as this one, include an additional button on a top-carrying handle. If your camcorder has a remote control, you can record without even touching the camera.

TAPE COMPARTMENT

The tape compartment, naturally, is where you insert the videotape. Tapes come in different flavors, but the most popular is MiniDV, which you'll find in most consumer camcorders. MiniDV tapes can capture from 60 to 90 minutes of footage, depending on the camera's recording speed. Some cameras allow even longer recording times, but at the expense of quality.

ZOOM CONTROL

The zoom control brings distant objects into close view and allows composition of more-interesting shots. It's usually located near the record button for one-handed camera work.

What's on the Menu?

A picture is not worth a thousand words—especially in the case of hard-to-decipher menu icons. Here are some universal icons, along with some camera-specific ones, and what they mean. (Your icons will likely differ a bit depending on what camera you have. We used a Canon camcorder.)

CAMERA MODES

Easy Recording: Set and forget—the camcorder takes care of the rest.

Auto Mode: The same as Easy Recording, but you can change parameters such as exposure and focus.

TV Shutter Priority: You set the shutter speed and the camcorder adjusts all other parameters.

Av Aperture Priority: You set the aperture and the camcorder adjusts all other parameters.

Manual: You control it all.

Sand & Snow: For shooting against a bright background; prevents underexposure of the foreground.

Spotlight: Optimizes an image for shots that concentrate lighting on a subject.

ND Filter Neutral Density Filter: Makes adjustments in bright, sunny situations to keep colors from washing out and images from blurring.

STATUS INDICATORS

SP or LP Standard Play or Long Play: The tape speed. SP is faster and gives the best quality. LP is slower and lesser quality.

Battery: Shows the amount of battery power left.

Tape Indicator: Indicates that a tape is set for erasure prevention or that the tape compartment is empty.

EXTRA FEATURES

Timer: Self-timer for taking photographs.

White Balance: Allows you to set the white balance to ensure color accuracy.

Finding the Right

You Are...

the FAMILY HISTORIAN

You Want To...

...make videos for yourself and your friends and family, simple as that. For instance, you might want to film family events, your newborn, or your vacations. Special effects and other fancy stuff are not your bag.

the LOW- BUDGET PRODUCER

You Want To...

...produce more than run-of-the-mill home videos. Sure, you might do some family videos—but you might also want to put together some training videos for work or a short film for fun.

the PRO FOR HIRE

You Want To...

...pay your rent, maybe even buy a house using funds from your video work. Whether you're making a living filming weddings or trying to create a short film for Sundance, your equipment must have the best in both audio and video. You recognize broadcast quality as your standard.

Software You Need...

Basic Editing

Apple iMovie

(\$49 or free with current shipping Macs, www.apple.com)

iMovie makes editing home movies a no-brainer. Just plug the camcorder into the Mac's FireWire port, launch iMovie, and start capturing footage. The editing process is a cinch—you just drag and drop video and audio clips, transitions, effects, and titles.



An App with More Power

Adobe Premiere

(\$549, www.adobe.com; tryout on the Disc)

Premiere goes far beyond iMovie's limitations. For instance, you're no longer limited to a single layer of video, meaning you have more control over the interaction of multiple video clips.



The Ultimate Software

Apple Final Cut Pro 3 (\$999, www.apple.com)

The best choice of software for the professional, hands down, is Apple's Final Cut Pro 3, an application that has gone from competing with the aforementioned Adobe Premiere to offering a compelling alternative to the high-end Avid systems. Final Cut Pro 3 can preview many different video effects in real time, and also offers real-time color correction.



Features You Need...

Portability is Key

You want an inexpensive camcorder that's small and portable so you can stow it in your carry-on bag. Other than that, just make sure your camcorder has FireWire (called iLink in Sony, Sharp, and Panasonic camcorders, and IEEE-1394 in camcorders from Canon and others), which is the easiest way to attach a camcorder to your Mac and transfer your movies to iMovie. If you see a less expensive camcorder without FireWire or iLink, you must resist.

More Control

You definitely want a camcorder that offers you more control, like manual focus and aperture and shutter control. You also need a camera with three CCDs for shooting cleaner and clearer footage than a single-CCD camcorder can produce. Three-CCD camcorders tend to have certain features on par with those of pro cameras, such as manual focusing and high-quality lenses. Many pros consider a camcorder in this range good enough to act as a second camera in multicamera video shoots.

More CCDs, More Customizability

Of course, three-CCD quality is a must for anyone who earns his or her bread with videos. Other features you should look for are expandability, pro audio support, and interchangeable lenses. Our best bit of advice is to ask fellow (or competing) videographers what they recommend—you'll probably get a list small enough to fit on a memo pad. Then assess this list, looking at each camcorder's features. Some emphasize audio, while others feature interchangeable lenses.

DV Cam

How seriously you take DV will determine what kind of camcorder and software you need. Take a look at our profiles—the family historian, low-budget producer, and pro for hire—to determine who you are and what you need.

Cameras to Consider...

Sub-\$1,000 Camcorders

Sony DCR-TRV240 (\$599, www.sonymstyle.com)

This camcorder uses the Digital8 tape format, which is pretty much identical to MiniDV in quality, but different in size. Digital8 is exactly the same size as the analog Hi-8 and 8mm standards, so it plays both those tapes. Plus the DCR-TRV240 works with iMovie, according to Sony. Digital8 is not a professional standard, so this camera stays in the first-timer's category.



Panasonic PV-DV402 (\$899.95, www.panasonic.com)

The PV-DV402 is a good choice because of its big 3.5-inch LCD display, along with image stabilization for capturing steady shots without a tripod. As an added bonus, the MagicVu IR filter allows you to record in complete darkness.



For the "Prosumer"

Canon GL-1 (\$1,999.95, www.canondv.com)

This popular camcorder is a favorite among high-end hobbyists and even professional videographers. The three CCDs and fluorite lens provide impressive clarity and color reproduction. The top-carrying handle also makes the GL-1 ideal for capturing creative angles and sports footage. The manual focus is a nice touch.



Panasonic PV-DV951 (\$2,499.95, www.panasonic.com)

This baby packs a 1.6-megapixel CCD array, so it's ideal for videographers who also want great-looking stills. It uses a lens from Leica AG, a world-renowned lens maker and a favorite among photographers. The humongous 3.5-inch LCD display makes capturing both footage and stills much easier.



What Credit Cards Are For

Canon XL1S (\$4,699, www.canondv.com)

One look at the Canon XL1S and you'll say, "I want it." Apart from having a killer body, this camcorder gives you the ability to change lenses, allowing you to choose anything from a standard zoom (5.5mm to 88mm) to a wide angle (3.4mm to 10.2mm)—even a stereo-imaging (3D) variety.

Sony DSR-PD150 (\$4,400, <http://bpgprod.sel.sony.com>)

This professional camcorder uses the DVCAM format, which is physically identical to MiniDV but records at a higher speed, improving data integrity. The device also records in regular DV format. One standout feature: a pair of built-in professional XLR audio-input jacks with phantom power, allowing you to connect professional microphones directly to the DSR-PD150 without an outside source of power.



Tips You Can Use...

Zoom Advice and More

- Less is more. Use the zoom sparingly. An excess of zoom shots screams "Amateur!" If you want to go from a far shot to a close-up, consider using cuts (going from one angle to another without a transition).
- Use camera height effectively. For a shot of a family gathering, try an overhead shot, where you hold the camera above your head. When videotaping children, bring the camcorder level with their height instead of pointing it down at them.

Interviews and Special FX

- Don't rely on the camera's built-in special effects. You can do a lot more on your Mac with programs such as Premiere and Apple's Final Cut Pro. If you use the camera's built-in effects and you don't like the results, you're stuck with them. Besides, many of the special effects in camcorders are pretty tacky.
- Consider using a wide-angle lens when interviewing people. This gives you the option of getting a little closer to your subject, which improves the sound recording from the camcorder's built-in microphone. Alternatively, buy an external, high-quality mic that you can attach to the jack—that way the mic's less likely to pick up noise from the camera's motor.

Understanding Lighting

- Get comfortable with the shutter and aperture settings. Lower shutter speeds allow for a greater amount of motion blur, which looks more natural on TV. Higher shutter speeds tend to have a strobing effect, which looks artificial in motion. A closed aperture brings the background and foreground into focus. An open aperture creates a shallower depth of field.
- When you are outdoors, set your camcorder to sunlight mode. Artificial light can cast a tint on footage. Tungsten lights add a yellow-orange tint. Fluorescent light adds a blue-green tint. In these situations, use the manual white-balance feature built into some camcorders: Place a white sheet or board in front of your subject and set the white balance.

The Videographer's

After paying a hefty price for your camcorder, you're probably ready to start shooting. Unfortunately, a camcorder is not an island—you'll need supporting equipment to get the most out of it.

CAMERA BAG

The more extras you get, the bigger a bag you'll need. For starters, the Lowepro Vidcam 5 (\$45 list, www.lowepro.com) is a good choice.



LENS TISSUE

It's often difficult to see dust on your camera lens until you watch your video on a TV. Avoid the nastiness! Have lens tissue on standby to keep your videos looking clean.



AV CABLE AND S-VIDEO CABLE

You may find yourself in a situation where you can view your camcorder footage on a television. These cables can connect your camcorder to a TV.

LCD HOOD

This nifty little add-on unfolds and attaches to the LCD display of your camcorder to reduce glare from the sun. It's small and inexpensive, and when you need it, you'll be glad you have it. Get one from Hoodman (\$19.95 to \$21.95, www.hoodmanusa.com).



VIDEO LIGHT

This add-on comes in really handy for those nighttime shoots. When it's dark, the picture usually becomes grainy. To keep quality at the highest level possible, plug in a video light (if your camera has that option).

Camera Bag

TRIPOD

Unless your arm is actually made of stone, you can't hold a camera completely still. A tripod not only gives you the option to stabilize your shot, but also gives your shoulder and arm a rest.

EXTRA BATTERY

If you're going to be shooting for any length of time, don't settle for the tiny battery that comes with your camcorder. Get a high-capacity battery so you can videotape for long hours without running out of juice.

BATTERY CHARGER

An external charger can be a lifesaver because it doesn't require plugging in your camcorder to charge the battery. This allows you to videotape or edit using one battery while the other charges.

EXTRA DV TAPES

Nothing is more frustrating than missing the action because you ran out of videotape. Keep some extras in your bag.

WIDE-ANGLE LENS

For the more adventurous videographer, a wide-angle lens serves two functions: It captures a wider image area without increasing the distance between you and the subject, and it's useful for adding special effects, like a fish-eye look.

Contributing Editor Andrew Tokuda runs his own DV production shop. Senior Editor Kris Fong recommends not eating Cheetos on any kind of shoot.

AROUND the CORNER

Getting More Mini Than MiniDV

When you think of DV, most of you think of the MiniDV format, which has become the de facto standard in consumer digital camcorders. End of story, right? Not quite. Enter the MicroMV format from Sony.

At 1.8 by 1.1 by 0.3 inches, a MicroMV tape is 70 percent smaller than MiniDV—about the size of a matchbox. Sony's new MicroMV camcorders (the DCR-IP5 and DCR-IP7 BT) use MPEG-2 for compression, the same method as for DVD. You can record up to 60 minutes on a MicroMV tape.

Will it replace DV? It's hard to tell, but the DV format has established itself as a standard. Currently MPEG-2 is not an accepted format for editing. You can't even capture footage via iMovie or any other video-editing app from MicroMV camcorders, even though they employ FireWire. But who knows? Sony might once again set new standards.

Got Extra Cash? Consider These

If you haven't maxed out your credit card after reading this article, advanced videographers should consider a few other devices.

While the 60GB or 80GB inside your Mac might seem vast, it's actually not, and it would behoove you to add a higher-capacity external FireWire drive. External 80GB or 120GB drives are very affordable these days (around \$250 and \$375), and thanks to the Oxford 911 bridge (built into just about every external FireWire drive), the transfer rate is fast enough for simple video editing. With the additional drive space, you can work on more video layers and longer footage without worrying about running out of hard drive space.

One of the most powerful combinations a professional videographer can have is the Matrox RTMac (\$599, www.matrox.com) and a video monitor. The Matrox RTMac, a real-time previewer combining a PCI card and breakout box, adds real-time previews for more video layers and effects than Final Cut Pro's built-in real-time capabilities allow. The RTMac also allows you to hook up a second computer monitor and a video monitor for the ultimate in productivity. A video monitor is essentially a television that you can use to view your video as it will appear to the audience. Professionals may want to consider the Sony PVM series of studio monitors for an accurate display of color.

This doohickey allows you to preview video and effects in real time.



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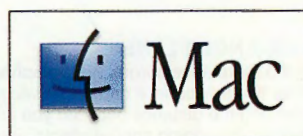
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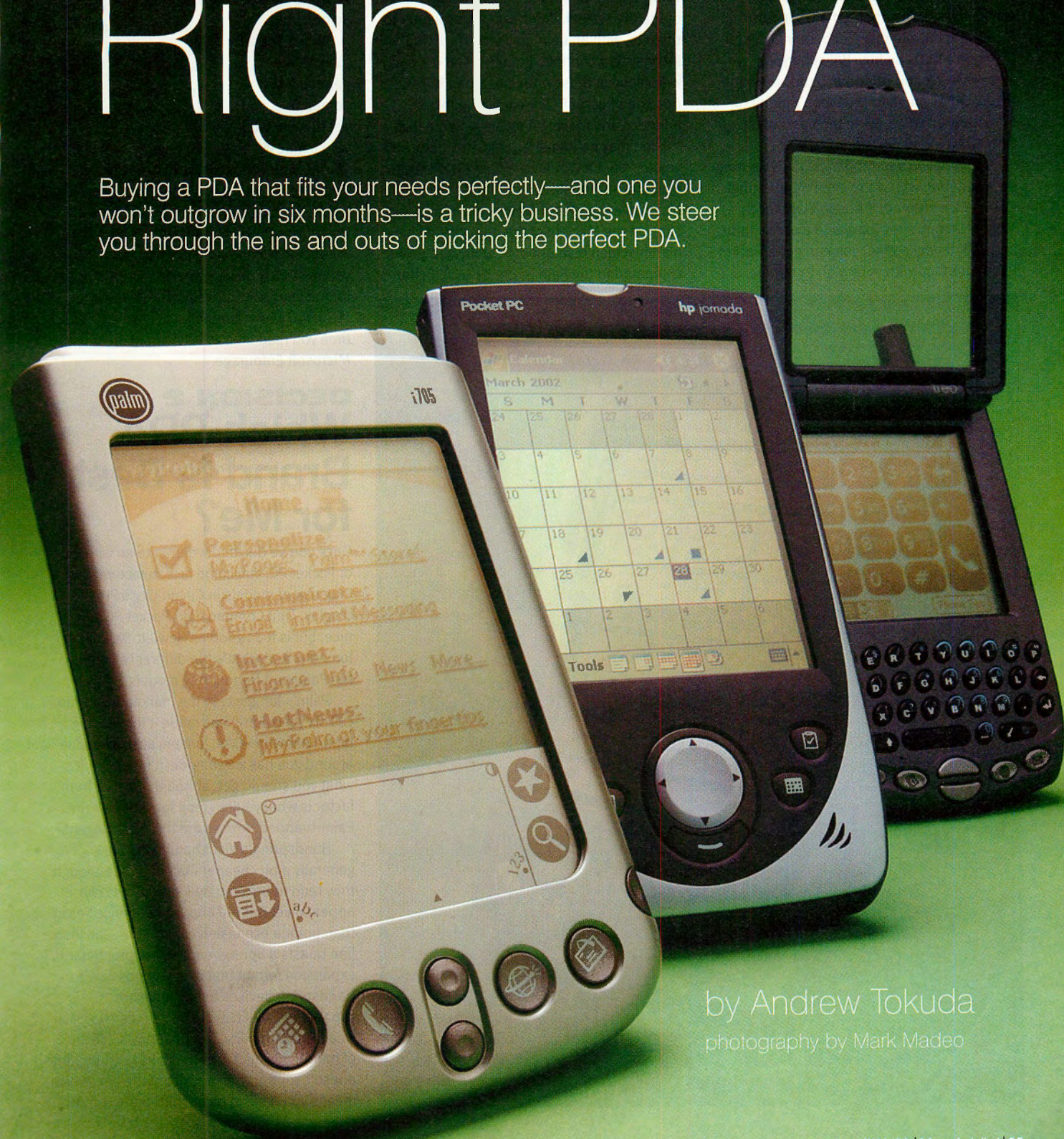


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Pick the Right PDA

Buying a PDA that fits your needs perfectly—and one you won't outgrow in six months—is a tricky business. We steer you through the ins and outs of picking the perfect PDA.



by Andrew Tokuda
photography by Mark Madeo

DECISION 1 Palm or Pocket PC?

Just when you thought the only thing you had to worry about was the Mac versus PC debate, now you've got to think about Palm OS versus Pocket PC. To choose the right operating system, first you need to figure out how you'll use your handheld; the OS in turn will determine what type of personal digital assistant (PDA) you buy. Will it be your address book and calendar, or do you want to play MP3s and surf the Web? That bit of introspection will provide the basis of all your PDA-related decisions.

Some of you veteran Palm OS users may be wondering why we're even mentioning Pocket PC—after all, it doesn't work with Macs. *Au contraire!* Thanks to a clever little app called PocketMac, you can get a Pocket PC to interface with your Mac (but more

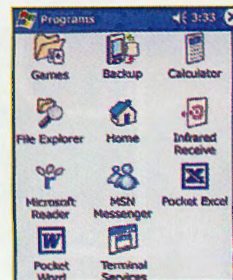
on that later). First, here's the scoop on each OS.

The Palm OS (www.palmos.com) originates from the keep-it-simple school of design with an interface so straightforward a mouse could figure it out. Pocket PC (www.microsoft.com/mobile/pocketpc) hails from the other end of the spectrum. Pocket PC's predecessor was Windows CE—a compact, handheld version of the Windows operating system. Windows CE was a bear to operate, with an unintuitive interface and inconsistent controls. But Microsoft did away with many of those problems when it designed Pocket PC, streamlining the interface and making it much easier to use.

You may be thinking, "Why in bloody hell would I want a Windows-based PDA?" We're glad you asked. Although they're more expensive than Palm devices and don't support the Mac out of the box, they *do* have higher screen resolutions (240 by 320 pixels compared to the Palm's 160 by 160), faster

processors, a voice recorder, built-in MP3 support, a speaker, and a lite version of Microsoft's Office suite (in addition to the standard date book, address book, to-do list, and so on).

While Pocket PC devices aren't generally Mac compatible, you can get them to work with a Mac via either Connectix's Virtual PC (\$199, www.connectix.com) or Information Appliance Associates' PocketMac (www.pocketmac.net). The Regular version of PocketMac (\$49.95) translates Pocket Word, Excel, and Notes—as well as any other file you're storing on your Pocket PC—into a format your Mac can read. The Pro version (\$69.95), which should be available by the time you read this, will synchronize with Microsoft Entourage.



Pocket PC is a more complex and powerful OS than Palm. And believe it or not, you can actually make a Pocket PC device work with your Mac.

Casio's EM-500 is a Pocket PC alternative to the familiar Palm devices.



DECISION 2 Which PDA Brand Is Best for Me?

Once you've decided whether to go with Palm or Pocket PC, you come face to face with the long row of models in Circuit City's PDA display. That Compaq iPaq Pocket PC looks nice, but is it as good as Hewlett-Packard's Jornada? And what's the difference between the Palm and Handspring models?

Palm's longevity in the market (if you can call six years long) has made it the leading brand name in PDAs. Just because everyone around you has a Palm doesn't mean that's what you should get, although if a nice form factor is what you're going for, we think the Palm-branded devices are the most elegant.

Handspring's Visor handhelds are generally a bit cheaper than Palm's, although they tend to be a tad bulkier and less chic in appearance. But the biggest difference lies in their unique expansion capabilities. The Visor line boasts a Springboard slot, a proprietary expansion format that makes it possible for Handspring devices to take on extra capabilities, like playing MP3s (see "Do I Need Expandability?", p38). Sony's Clié line of handhelds also runs the Palm OS, but Sony doesn't support the Mac out of the box, which means you have to buy a third-party software

PDA Pickings

Palm m515. iPaq 3835. Doesn't anyone give their products memorable, creative names anymore? Well, no—but here's a little help. We've narrowed the vast selection of PDAs to some of the coolest models out there right now. They range from cheap address-keeping devices to sell-your-firstborn minicomputers. Use our chart to find the best PDA for your needs.

Operating System

Palm

Pocket PC

Brand/Model	Price	RAM	Expansion	Battery	Display	Weight	In a Nutshell
 Palm m125	\$199	8MB	SD, MMC	AAA	grayscale, 160 by 160 pixels	5.3 oz	Basic low-end model with flip-top lid and snap-on faceplates.
 Palm m130	\$279	8MB	SD, MMC	rechargeable lithium-ion	65,536 colors, 160 by 160 pixels	5.4 oz	Cheapest color PDA on the market, with flip-top lid and interchangeable faceplates.
 Palm m515	\$399	16MB	SD, MMC	rechargeable lithium-polymer	65,536 colors, 160 by 160 pixels	4.9 oz	Lightweight and slim, with plenty of built-in RAM and a beautiful color display.
 Palm i705 Wireless	\$449	8MB	SD, MMC	rechargeable lithium-polymer	grayscale, 160 by 160 pixels	5.9 oz	Built-in wireless capability with a fairly small form factor.
 Handspring Visor Neo	\$169	8MB	Springboard	AAA	grayscale, 160 by 160 pixels	5.4 oz	One of the most inexpensive PDAs; comes in three colors—blue, red, and smoke.
 Handspring Visor Prism	\$299	8MB	Springboard	rechargeable lithium-ion	65,536 colors, 160 by 160 pixels	6.9 oz	A little heavy weightwise, but a nice price; comes with Eyemodule (for digital pix).
 Handspring Treo 180 and 180g	\$399*	16MB	none	rechargeable lithium-ion	grayscale, 160 by 160 pixels	5.2 oz	Built-in cell phone and wireless; one model has a keyboard, the other requires Graffiti.
 Casio Cassiopeia E-200	\$600	64MB	SD, MMC, CF	rechargeable lithium-ion	65,536 colors, 240 by 320 pixels	6.7 oz	One of the most expandable models, with support for SD, MMC, and CF.
 Compaq iPAQ 3835	\$599	64MB	SD	rechargeable lithium-polymer	65,536 colors, 240 by 320 pixels	6.7 oz	Huge memory capacity, fast processor, and voice-command capabilities.
 Hewlett-Packard Jornada 565	\$550	32MB	CF	rechargeable lithium-polymer	65,536 colors, 240 by 320 pixels	6.1 oz	Flip-up lid and nice form factor.
 Toshiba e310	\$399	32MB	SD	rechargeable lithium-ion	65,536 colors, 240 by 320 pixels	4.9 oz	New, affordable, and lightweight.

*with service activation

Find out more at the following Web sites: www.palm.com, www.handspring.com, www.compaq.com, www.casio.com, www.hp.com, and www.pda.toshiba.com.

package, namely Mark/Space's The Missing Sync (\$29.95, www.markspace.com), to HotSync your PDA.

As for Pocket PC-based devices, the major players include Compaq, Casio, HP, and Toshiba. Compaq offers PDAs starting at \$399.99 (SRP) for its grayscale iPaq H3135, and those who appreciate Apple's fine design sense might appreciate this line's slick, sexy look. While the name Casio may conjure up images of digital watches and cheesy department-store keyboards, this company was actually one of the first to come out with Pocket PC devices. Casio devices tend to appeal more to entry-level PDA users (the company offers several sub-\$300 products), and typically receive praise for their bright screens. Other solid, steady alternatives are HP's Jornada line and Toshiba's offerings. For a list of some handheld offerings, see "PDA Pickings," above.

DECISION 3 What Features Are Important?

Once you become familiar with what's out there, you need to think about what features you need and, more important, are willing to pay for.

Color Versus Grayscale. Color PDAs, with 16-bit, 65,536 color capability, look much nicer than the grayscale models. However, color is a luxury and costs extra. Consider how you will use a PDA—if you want to carry around digital pictures of your kids or play games, color will enhance your life greatly. Otherwise, do you really need to look up the phone number for Domino's Pizza in 16-bit color?

Memory. Most Palm OS devices have 8MB of memory, which is quite a lot considering the small memory footprint of Palm applications.

Power users might consider 16MB models such as the Palm m515 or Handspring Visor Pro, which allow you to store more data and applications without add-on memory modules. Pocket PC devices require more memory, and therefore offer more. You won't find a Pocket PC with less than 16MB of RAM, and several, including the iPaq 3835, have 64MB. Yowzers!

Form Factor. All handhelds will fit in your hand, but their look, feel, and weight differ, and this will definitely affect your decision. In general, Pocket PC devices are a little larger and heavier than Palm ones. The lightest PDA device, at 4 ounces, is the Palm m500. A typical Pocket PC device weighs around 6 ounces. If you want to carry a PDA in your pocket, those extra ounces will make a difference in terms of sag.

Battery. More and more PDAs use rechargeable batteries, a much more

convenient and cost-effective option than the nonrechargeable AAA kind. Some models still use the latter, but that's not really so bad. Nonrechargeable batteries last about twice as long as rechargeable, often holding a charge for two months with regular use.

DECISION 4 Do I Need Expandability?

MP3s, digital pictures, eBooks...you may want to store a lot of stuff on your PDA. Unfortunately, you have to contend with a confusing variety of expansion standards (too many), and each device seems to have latched on to a different one (see "Memory Lane," p44).

Palm's PDAs accept MultiMedia Card (MMC) and Secure Digital (SD) cards for add-ons like travel guides, language translators, and Bluetooth (a wireless standard). Pocket PCs typically accept some combination of MMC, SD, and CompactFlash; some models even accept PC cards.

With its proprietary Springboard slot, Handspring offers the most in terms of creative—and sometimes weird—expansion possibilities. For instance, the Springboard allows you to turn your PDA into a camera, an MP3 player, a GPS, or a voice recorder, to name just a few options. More than 70 Springboard add-ons exist to date, including—no joke—a module that helps you take power naps by waking you up before you

The Springboard slot gives Handspring users a wealth of expansion opportunities.



fall into too deep a sleep (see www.handspring.com for a complete list of modules). We don't know of any similar add-on for another PDA, but that's probably for good reason.

DECISION 5 How Can I Go Wireless?

Imagine retrieving your email almost anywhere. Or surfing the Web almost anywhere. How about conducting an AOL Instant Messenger chat right from your PDA? With wireless, these scenarios can become reality—at a price, of course.

If you're not sure you want to add wireless service to your PDA, no sweat. Most devices allow you to add it through an expansion slot, so you can decide to go this route later. For example, Xircom (now part of Intel, www.intel.com/network/connectivity) makes a number of wireless add-on modules. But if your *raison d'être* is to be on the Web 24-7, you should consider a handheld with built-in wireless—it's an easier and more elegant solution.

Your top wireless option right now is Palm's i705, which is ready to connect to the Internet without any additional hardware. Also of note is Handspring's Treo 180, which operates not only as a wireless PDA, but also as an integrated cell phone. And the word on the street is: Several Pocket PC devices with built-in wireless are right around the corner. ■

Must-Have Software

Sure, you can survive with your address book and other standard apps. But to make the most of your PDA, you'll want to fill it to the brim with cool apps.

Documents To Go Professional (Palm OS)

DataViz, www.dataviz.com, \$69.95
Documents To Go transfers Microsoft Word, Excel, and PowerPoint documents from your Mac to your Palm-based PDA and back. You can even edit and create new documents on your PDA and transfer them to the computer. You'll find this software included with most Palm models, or you can buy it separately.

Vindigo (Palm OS and Pocket PC)

Vindigo, www.vindigo.com, \$24.95
If you need help finding the right place to go at the right time, you need Vindigo. This service helps you find restaurants, movies, and places to shop, and it's always up to date. **Cool people know where to go at night. Vindigo helps you be way cool.**



Ancient Red (Palm OS)

Syrell, www.ancientred.com, \$19.95
Think of Ancient Red as Diablo for the Palm. If you're into role-playing games, what better way to lose hours of your life than to take this game with you wherever you go?

Turjah II (Pocket PC)

Jimmy Software, www.turjah.com, \$24.99
This graphically rich game is mindless shooting fun in the tradition of classic 1980s overhead-shooter games.



Pocket PCs make for killer gaming.

TV Remote Controller (Pocket PC)

PDawin.com, www.pdawin.com, \$14.95
You couldn't ask for a more straightforward product name. TV Remote Controller turns your Pocket PC device into a universal remote control for TV, VCR, cable, satellite, DVD, and more. Plus it supports skins.

Pocket Slides (Pocket PC)

Conduits Technology, www.conduits.com, \$39.95
Create and edit presentation slides on a Pocket PC device. Connect your handheld to a projector and you're ready to give a presentation—no laptop required.

Palm's i705 has built-in wireless capabilities.



Former *MacAddict* editor Andrew Tokuda thinks old-school is cool. That's why he still uses a Palm IIIe with 2MB of memory.



Dear Burglar,

The key is under
the mat. Beer and
sandwiches are
in the fridge.

♥ Greg & Patty

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Find Your MP3 Mate

There are lots of MP3 players out there, but trying to find good Mac-compatible ones is like searching for straight guys at a Cher concert. They're out there, but you've got to look—and know what to look for.



by Kris Fong
photography by Mark Madeo

DECISION 1

What kind of player is right for me?

Storage capacity and lifestyle—these are the two most important factors when you're picking out a music player. Unfortunately, for the most part, the more songs your MP3 player can store, the less portable it becomes. The three basic types of music players available exemplify this rule.

THE JUKEBOX

The latest rage is the jukebox-style player, which comes equipped with a hard drive that can do double duty as an external hard drive. Sizes vary; you can get something as minimal as the 5GB original iPod or opt for the 20GB RioRiot.

How big you decide to go depends on how vast your music collection is, whether you want to use the device as a hard drive, and whether you want to carry it in your pocket.

An MP3 file encoded at 128 Kbps weighs in at just a smidgen under 1MB per minute of music. One problem with hard drives, though, is that they can make music skip if jostled. So when shopping for a jukebox-type player, make sure the player has a good-size memory buffer (at least 5 minutes), which helps keep your music skip-free for a reasonable duration. The bigger the buffer, the more time you have to dance the funky chicken before your player starts acting up.

FLASH-MEMORY PLAYERS

Because of their moving parts, as well as heftier sizes and weights, hard drive-based players aren't the best companions for you active types or exercise freaks. You're better off getting a player with Flash Memory, which won't skip a beat no matter how much you bounce around (that's because these devices don't have moving parts). Players that come with internal memory only can be restrictive; once you fill the player, you can't add more tunes unless you delete some first. However, these types of players are also usually the tiniest of the bunch, and many offer 128MB—good enough to store a couple albums' worth of tunes.



The Archos Jukebox gives you up to 20GB of space for 4,000 of your favorite songs.



Samsung's Mini Yepp comes in a tiny package and weighs in at just over an ounce.

Many Flash players come with a memory slot for plugging in removable Flash Memory cards (see "Memory Lane," p44), allowing you to expand your MP3 library considerably. The downside of Flash Memory players? The cards are expensive; for instance, a 64MB CompactFlash card costs about \$42.



The RioVolt plays regular audio CDs and MP3 CDs for the ultimate in versatility.

CD-MP3 PLAYERS

Folks who want their MP3 but also want the option of toting CDs should consider one of the many MP3-and-CD players currently on the market. These are essentially CD players that can also play MP3-encoded CDs. A CD holds 650MB of data, so you can store ten albums of MP3 music on one CD, making this an extremely cheap storage medium.

DECISION 2

What features should I look for?

MP3 portable players used to be just that—players. Today they can function as hard drives, tune into FM stations, tell you the time, attach to a PDA, serve as recording devices, or even snap pictures. Despite the variety of options, you should consider the following core set of features when buying an MP3 player.

Voice Recorder. Players with this feature have a built-in mic and can encode audio to MP3 on the fly—good for those who want to record lectures, meetings, or interviews. Some players also feature a line-in jack, which lets you connect the player to a stereo, an external mic, and more for recording.

FM Tuner. Sometimes you just get sick and tired of your tunes. Other times gyms require you to tune into the radio to get television sound. Bottom line: Having a radio gives you more listening alternatives.

Audio-File Support. MP3 players obviously support MP3 files (duh), but many also support WMA (Windows Media), G2 (Real Media), MP2, or even AAC (Advanced Audio Coding). If you have audio files in formats other than MP3, consider a player that supports the formats you have, which will save you the time and hassle of converting everything to MP3.

Skip Protect. If you don't plan on carrying your player along everywhere you go, this feature won't matter to you. If you do, either get a Flash Memory player (especially if you ►

Accessorize? iPod-icize!

Leave it to the Mac community to embrace the iPod and create accoutrements tailored especially for it. If you have an iPod or need an incentive to buy one, check out these software options and accessories.

Apple iPod 1.1 (free, www.apple.com)

Apple's own iPod software offers much-needed equalizer settings, along with an address-book organizer that allows you to download contacts from Entourage, Palm Desktop, and Mac OS X's Address Book. You can even import a FileMaker database.

Other World Computing The Pod Protector (\$29.95, www.macsales.com)

This leather carrying case protects your iPod from smudges, and features a swiveling quick-release belt clip for easy disengagement.



Protect your precious iPod with this understated leather case from Other World Computing.

Dr. Bott iPod Connection Kit (\$49.95, www.drbot.com)

This kit allows you to connect your iPod to your car stereo via an FM transmitter. You can also use the kit's RCA connectors to hook your iPod to a home stereo or boom box.

Griffin Technology PowerPod (\$19.99, www.griffintechnology.com)

This nifty car charger ensures that you'll be tearing up the highway while listening to your iPod even after the battery dies. Just use it to connect your iPod to your car's cigarette-lighter adapter and power up.

Xtreme Mac Hip Tunes Bundle (\$29.95, www.xtrememac.com)

Though we hate to conceal the iPod's good looks, we need some way to tote it around when we lack pockets and purses. This bundle features an iPod case, an earbud pouch, and a belt clip. The case comes in colors and fabrics even Joan Rivers could love (leopard suede, anyone?).

The Deluxe iPod case comes with the Hip Tunes bundle to ease toting.



jog) or buy a player with a big enough memory buffer (at least 5 minutes, or 2MB) to keep your music flowing without interruption.

Connection Type. Most players are USB. However, if you're considering one of the hard drive-based players, think about file-transfer rates. Do you really want to copy 20GB of songs and files over a sluggish USB wire? Currently (at press time), only Apple's mighty iPod features FireWire.

Battery Life. If you plan to hang out all day with your butt parked next to a wall socket or a car's DC adapter, you can power your player electrically. If you're pounding the pavement, battery life has a big impact. To get more boogie for your buck, seek players that handle battery life well.

EQ (Equalizer). Some of you have no problem just listening to your tunes. Others of you may feel the need to shape them. For the

latter audience, players with EQ support allow you to adjust music frequencies to your tastes. Well, almost. Those that include only EQ presets don't allow you to customize frequencies. Look for a manual or custom setting if you want to tailor EQ to a song. Hip-hoppers can optimize their enjoyment with a bass-boost control.

Software Upgradability. Manufacturers who install firmware in their players sometimes allow upgrades via a software download. This can be a great benefit if the manufacturer is keen on providing tweaks and enhancements down the road. Most notably, Apple released an iPod software update that added an address book and over 20 EQ presets (see the sidebar "Accessorize? iPod-icize!", p41).

DECISION 3 Do I need portability?

Planning to take your player on a marathon or for a run on the treadmill? Portability will factor heavily into your decision if you're active. As we mentioned above, Flash Memory players are best for users on the go—

Digital Global Network's MPIO-DMK is great for workoutaholics, but lose the neck strap unless you want it to bounce annoyingly against your chest.



Meet the Players











To get a sense of your options, we've pulled together a list of ten Mac-compatible MP3 music players—everything from the substantial hard drive variety to the light-as-a-finger type.

PLAYER TYPE:

Jukebox

Flash
Memory

CD-MP3

Model	Price	Memory	Audio Files	Battery	Audio Modes
 Apple iPod	\$399/\$499	5GB/10GB (hard drive)	MP3, WAV, AIFF	10-hour rechargeable lithium-polymer	Audio player
 Archos Jukebox MP3 Recorder	\$260/\$370	10GB (USB)/20GB (USB 2.0) (hard drive)	MP3	8-hour rechargeable NiMH/4 AA	Audio player, voice recorder, device input recorder
 SSI America Neo Jukebox MP3 Player	\$220/\$300/ \$400	10GB/20GB/30GB (hard drive)	MP3, MP2	4-hour rechargeable lithium-ion	Audio player
 SonicBlue RioRiot	\$400	20GB (hard drive)	MP3, WMA	10-hour rechargeable lithium-ion	Audio player, FM stereo
 RCA Lyra 2 RD2211	\$150	64MB (CompactFlash card); CompactFlash slot	MP3, WMA, G2 (Real Audio)	2 AA	Audio player, FM stereo
 Digital Global Network MPIO-DMK	\$209	128MB (internal); no expansion slot	MP3	1 AAA	Audio player
 Samsung Mini Yepp	\$130	64MB (internal); no expansion slot	MP3	1 AAA	Audio player
 Creative Technology Nomad IIc	\$130/\$170	64MB/128MB (internal); SmartMedia slot	MP3, WMA	1 AA	Audio player, voice recorder
 Samsung Yepp YP-700H	\$299	128MB (internal); SmartMedia slot	MP3, WMA, 2xMP3 (proprietary)	20-hour rechargeable NiMH/1 AAA	Audio player, FM stereo, voice recorder
 SonicBlue RioVolt SP250 CD-MP3 Player	\$180	N/A	Supports audio CD, CD-R, CD-RW	15-hour rechargeable NiMH/2 AA	CD (audio, MP3, WMA) player, FM stereo

they're lighter, smaller, more-durable, and won't weigh you down or bounce noticeably.

Other factors to consider: Belt clips and armbands are ideal if you're constantly moving because they hug the player to your body, presenting less of a nuisance than neck straps or over-the-shoulder carrying cases. If you'd rather hand-hold the unit, make sure you can grip it comfortably and it won't slip out of sweaty palms; carrying cases are a huge benefit in this case.

DECISION 4 What extras will I need?

After you've figured out what kind of player and features you need, one more consideration lies ahead: add-ons. Before you plunk down the plastic, think about the player's overall cost and the expansion capabilities you desire. With players that use only Flash Memory, as well as hard drive-based players, the retail price is pretty much the last word, unless you want to buy a carrying case or upgrade your headphones. For instance, both Sennheiser



If you want the most megabytes for your buck, hard drive-based players like the RioRiot are the best value.

(www.sennheiser.com) and Sony (with its Fontopia line; www.sonystyle.com) offer great-quality sound.

The inclusion of a memory-expansion slot can drive up the player's total cost significantly, depending on how much extra storage you want (a 512MB CompactFlash card alone costs more than a 5GB iPod, yet only provides about 10 percent of the storage space). Then again, if you don't plan to sit,

stand, and stride through many megabytes' worth of music, the storage that came with your Flash Memory player may be all you require.

Another thing to consider: If the player doesn't include rechargeable batteries (a better value), you need to either have a battery budget (battery life on these devices can be fairly short) or, better yet, invest in a charger and rechargeable batteries. ■

Find out more about these MP3 players at the following Web sites: www.apple.com, www.archos.com, www.ssiamerica.com, www.sonicblue.com, www.rca.com, www.mpio.com, www.samsungusa.com, and www.creative.com.

EQ	Ships With	In A Nutshell
Presets	Stereo earphones, FireWire cable, iTunes software	The most elegant, lightest (6.5 oz), and only FireWire option (battery charges via FireWire); 32MB skip-protection buffer, address storage, custom engraving.
Bass, treble, loudness, bass-boost control	Stereo over-ear headphones, carrying case, MusicMatch Jukebox software	Records and encodes MP3 audio with quality and gain controls; includes built-in mic, stereo line-in jack and 2MB buffer; 20GB version uses USB 2.0; 12 oz.
Presets	Stereo headphones, carrying case, infrared remote control, MusicMatch Jukebox software	Less expensive but much heavier than the iPod; features 2MB skip-protection buffer; up to 30GB capacity; USB only.
Tone-balance control	Stereo headphones, carrying case, iTunes software	Hefty (5-plus inches long, nearly 4 inches wide, 10 oz); features 16MB skip-protection buffer; USB only.
Presets, manual, bass-boost control	Stereo headphones with remote, belt clip, 64MB CF card, car cassette adapter, MusicMatch software	Not the smallest player in town (4 1/2 inches long by 2 1/2 inches wide); stores music on a removable CompactFlash card for easy swapping.
Presets, bass-boost control	Stereo earphones with attached neck strap, arm strap, belt clip, MPIO-DMK Manager software	Astonishingly small size and weight (1.02 ounces); useful jog dial for sifting through tunes; earphones are annoyingly attached to a neck strap.
Presets, bass-boost control	Stereo earphones, belt clip, preloaded music, Yezz Explorer software	Wonderfully tiny, light (1.13 ounces), and affordable; 64MB of nonexpandable memory might frustrate you.
Manual, presets, bass and treble controls	Stereo over-ear headphones, belt clip, iTunes software	Versatile—combines internal memory with a SmartMedia expansion slot; offers voice recording.
Presets, bass-boost control	Stereo earphones, carrying case, battery charger, remote control, Yezz Explorer software	Proprietary 2xMP3 technology delivers 128-Kbps audio at half the file size, meaning you can store more tunes; 2.6 ounces.
Bass-boost control	Stereo earphones, stereo over-ear headphones with inline remote, carrying case, iTunes software	8-minute antishock protection for MP3s; CDs offer much versatility as a music-storage medium.

Senior Editor Kris Fong is the human equivalent of an iPod; she can store piles of information, play music, recall addresses, and get obnoxiously loud on demand.

Memory



CompactFlash (CF)

An older but ubiquitous standard invented by SanDisk, CF features 50-pin connectivity, IDE and ATAPI hard drive compatibility, and a lot of the same functionality found in a PCMCIA card (in fact, you can buy PC Card adapters that allow you to use CF cards in cameras and other devices that take PC Cards). About the size and thickness of a matchbook, CF cards weigh more and consume more power than other standards. A format known as Ultra CompactFlash is also available. It is nearly identical to CF and they're compatible, but Ultra has faster transfer speeds, ideal for high-end digital photographers.

Pros: Lots of support. Lots of manufacturers. Form factor big enough to accommodate add-ons (such as the Microdrive or a modem for your PDA), yet not too bulky for lightweight applications.

Cons: Competing formats—namely CFI and CFII—confuse the issue. (Make sure your device supports both or check the type of card you need before purchasing.)

Capacity: 4MB–1GB

Cost per megabyte*: 78 cents



MultiMedia Card (MMC)

No card is smaller than MMC, designed by the Siemens Semiconductor Group and SanDisk with small devices and low power consumption in mind. Introduced in 1997, the cards are about the size of a postage stamp and almost as thin.

Pros: Small, dainty, and relatively cheap. Regaining popularity thanks in part (ironically) to the competing SD standard—MMC can plug right into an SD slot in new devices. Uses very little power—a boon for portable devices.

Cons: Current capacity limited to 128MB. Easy to lose. Only supports memory functions.

Capacity: 8MB–128MB (128MB should be available by the time you read this)

Cost per megabyte*: 86 cents



Secure Digital Card (SD)

Copy protection sucks. You don't care if your Billy Joel MP3 collection is encrypted at a CIA level of security—it's the music industry that cares. SD cards feature support for copy-protected content, such as MP3s, making this standard simply an irritating version of MMC.

Pros: Two extra pins provide faster data-transfer rates than MMC cards. MMC cards work in SD slots (though not vice versa).

Cons: Encryption standard does *not* benefit the consumer and even causes problems in certain MP3 players. SD costs more because of copy-protection feature.

Capacity: 16MB–128MB

Cost per megabyte*: 93 cents

Struggling Standards

PocketZip Iomega's faltering technology, formerly known as Clik Disk. It has a low cost per megabyte, but only a couple of devices use it—one of them a discontinued MP3 player from Iomega. Also, it's fragile and limited to 40MB capacity. So long, PocketZip, we hardly knew ye.

DataPlay Imagine PocketZip had offered larger capacities (up to 500MB) and was cheaper per megabyte by a factor of 10. DataPlay is a promising format, but is neither solid state nor rewritable. For all the hype it received when it first came out, few major companies (apart from Samsung) have adopted it.

Lane

A Visual Guide to Compact Storage

by Frank O'Connor
photography by Mark Madeo



Microdrive

If you can afford it, the IBM Microdrive (a tiny but fully functional CF-size hard drive) is actually very cheap per megabyte and incredibly flexible. Imagine watching fully MPEG-compressed video on, say, a Pocket PC. The Microdrive makes that possible.

Pros: High capacity makes Microdrive a natural for storing high-res images in a camera. Fast transfer rates. Compatible with CF Type II devices.

Cons: Not all Microdrive capacities work in all devices. Moving parts of hard disk make it more likely to break.

Capacity: 340MB–1GB

Cost per megabyte*: 37 cents



SmartMedia

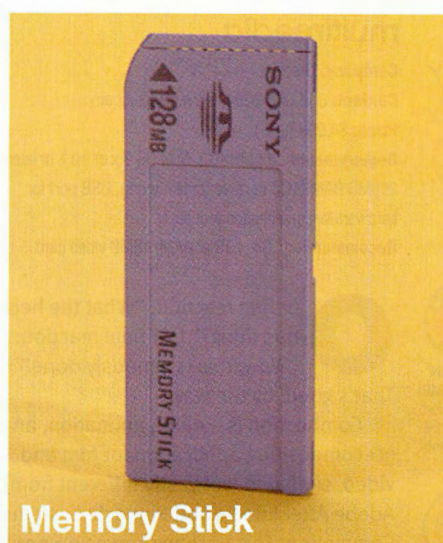
Light yet sturdy, SmartMedia cards are no thicker than a credit card. When first introduced by Toshiba, SmartMedia cards were known by the catchy name of Solid State Floppy Disk Cards. Luckily, that name has joined the floppy in well-deserved retirement.

Pros: A fairly widespread format common in removable-memory MP3 players. Attractive cost per megabyte.

Cons: Smaller MMC standard starting to take over SmartMedia's domain, leaving us wondering whether SmartMedia will be saying its good-byes soon.

Capacity: 8MB–128MB

Cost per megabyte*: 62 cents



Memory Stick

Always beware the proprietary system. When Sony first introduced this format, it was basically cheaper per megabyte to employ the memory banks of a limo full of Harvard professors. Luckily, several device manufacturers other than Sony have adopted Memory Stick, so the price has dropped. Another factor contributing to the price plunge is that manufacturers like Lexar and SanDisk are now making their own versions of Memory Stick.

Pros: Nice form factor. Big enough to support add-ons, such as a tiny digital camera for a Sony Clie.

Cons: System designed for the music industry's benefit, not yours, to prevent piracy (remember, Sony is in the music biz too). Sony charges you for these "useful" encryption features, potentially rendering future CDs un-MP3-able.

Capacity: 8MB–128MB

Cost per megabyte*: 70 cents

Compact Storage Complexities

If you find the vast array of compact storage media confusing, you're not alone.

Manufacturers' inability to settle on one standard makes the lives of consumers much more difficult. Still, there are common things to watch out for among all the standards:

- Regardless of the maximum capacity a certain standard offers, chances are your favorite device has a limit on what it can support. Check your manual—it would be aggravating to buy a 256MB card, only to discover that your MP3 player only recognizes up to 64MB.
- Of course, transfer speeds of the various standards are important. But other factors—USB connections, built-in software, card readers, and such—also impact speed.
- Don't throw a card you just spent \$100 on in the mail. According to the CompactFlash Association, as well as experts at SanDisk, the irradiation systems used to sanitize some mail against anthrax and other biological agents could damage your compact media cards (it's better to use FedEx or UPS if you need to mail cards).

*We calculated costs per megabyte using the retail price of several popular brands at the card's highest capacity. The actual cost will vary (sometimes greatly) by manufacturer and capacity. In general, the lower the capacity, the less value per megabyte you're likely to see. Bottom line: Shop around!

reviews

Better living through smart shopping.

Combustion 2

multimedia



Company: Discreet

Contact: 800-869-3504, www.discreet.com

Price: \$4,999 (SRP)

Requirements: 266MHz G3, Mac OS 9.x or 10.1 or later, 256MB RAM (1GB or more for film work), USB port for hardware key, multibutton mouse

Recommended: G4, 1GB of RAM, 16MB video card



FREAKIN' AWESOME!
The most valuable products, the coolest gizmos.



SPIFFY
A solid offering. Overall a good investment.



YEAH, WHATEVER
Neither recommended nor rejected. Some might like this, but we weren't impressed.



BLECHI
Give us back the time we spent testing this.

Our first reaction: "What the heck is this thing?" Our final reaction: "Wow, this is seriously dope!"

That's good, by the way.

Combustion is a paint, animation, and 3D-compositing application for film and video, similar to (yet vastly different from) Adobe After Effects and Pinnacle Systems Commotion. This package serves primarily to create special effects in major motion pictures—remember when Kevin Bacon turned invisible in *Hollow Man*? That was Combustion. The program is beyond the average consumer's pocketbook, but for video freelancers and professionals, it's a deal.

Combustion is an entry-level, professional application that has a common user interface (UI) and file compatibility across different platforms; it's also compatible with Discreet's higher-end compositing packages, Flint and Inferno. When you look at Combustion, your initial reaction may be similar to ours—fear and loathing of the Mac-alien UI, and the frightening thought that you'll have to relearn everything. This may be particularly true for those comfortable with After Effects

and Commotion. After we spent a few hours going through tutorials and playing around, Combustion's UI made sense—more than those of the aforementioned Mac programs, actually.

The interface is broken into two sections. The top section is your Viewport area, which you can set up to display video clips, Operators (processes applied to video and other items), and a Schematic View of your project (more on this later). The lower section contains everything else, including a Toolbar, Workspace (a hierarchical view of your project), Timeline, Operator Controls, Audio, and...well, everything else. Although it sounds like a jumble of confusion, this half is actually very clean and smart, which distinguishes Combustion's interface from those of programs like After Effects, where the interface is based on windows and floating palettes. Whenever you select an item from the Workspace—a Text Operator, for example—you only see the controls



Don't let the alien-looking interface fool you—Combustion is right at home on a Mac, and its color-keying controls are second to none.

relevant to that operator, such as font size, type, and so forth.

The Viewport area supports several configurations, including single, two-up, and quad view, so you can view several items at a time. For instance, in the two-up mode, you can have one Viewport show you an unprocessed piece of footage, while the other one shows the effects of, say, the Discreet Color Corrector Operator. In another application, you might have one Viewport display your work layers in a 3D space while another Viewport displays the final composite.

A second monitor makes working in Combustion much more productive (that way you can have many different Viewports open at once). If you have a two-monitor setup, Combustion's interface expands to fill both of them as soon as you launch it.

You can also set up a Viewport for Schematic View, which displays your project (or Workspace, as Discreet calls it) in

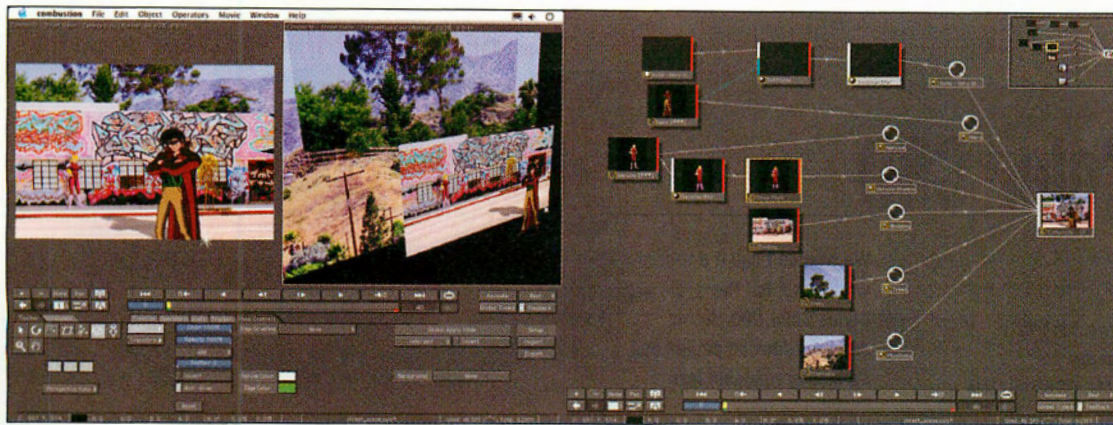
diagram form, presenting each element (video clips, layers, Operators, and so forth) as an independent, interconnectable node in the scheme of your project. In Schematic View, you can rearrange and reroute the



If you're serious about video work, a second monitor is a requirement, not a luxury.

Compatible with Mac OS X or later.

Compatible with Mac OS 9.x or earlier.



In two-viewport mode, you can see a camera view and a perspective view.

connections between the nodes by simply clicking and dragging. Users of Alias/Wavefront Maya will be familiar with this easy-to-use, node-based workflow, and it clearly sets Combustion apart from After Effects and Commotion.

Speaking of those would-be competitors, Combustion offers a combination of their feature sets—and more. For instance, After Effects doesn't have Commotion's painting, rotosplining, and motion-tracking capabilities, and Commotion doesn't have true 3D compositing and composite nesting as After Effects does. Ultimately, you have to get both programs to cover the demands of professional work. Combustion has all of the above-mentioned features built in, along with a host of other professional-level features.

One of these features is the grain-management tool. Grain is a natural element of film. When you composite computer-generated material, such as 3D animation, with film footage, the two look noticeably different because computer-generated images do not have grain. With Combustion's grain tools, you can add grain to the computer-generated element by selecting a grain profile from a list of Kodak film stock, or by sampling an area of the film element and applying that profile to the computer element. Likewise, the grain-management tools can remove grain.

Another professional feature is support for color look-up tables (LUTs). To put a dry subject in easy-to-swallow terms, film contains more color information than the 8 bits per channel supported by computer monitors. When film is scanned into digital form (10-bit Cineon), the extra color information is saved, but does not display correctly on a monitor. With Combustion's View LUT, you can view Cineon files on your Mac and see them as they'd appear projected on a movie screen. This is essential for people who work in motion pictures and need to retain

the full color bandwidth of the original film.

Combustion's feature set is very rich—so rich, in fact, that it's impossible to cover even a fraction of it in the two pages we have. Some highlights: The Discreet Keyer, an awesome tool for cutting clean mattes from bluescreen or greenscreen footage, really blew us away. The program offers extensive and intuitive controls for features like spill suppression (eliminating the key color's fringe around the subject) and matte choking. You can adjust all the parameters for keying through time, so you have complete control.

The Discreet Color Corrector is much more intuitive than After Effects', and looks similar to the Color Corrector in Final Cut Pro 3. The feedback is a little shakier than that of Final Cut's real-time 3-Way Color Corrector, but it's good to have.

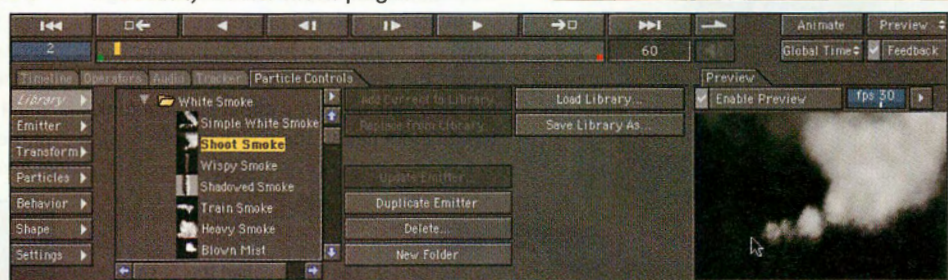
The Particles Operator rocks. Particle systems simulate physics-based effects such as smoke, fire, and rain. They can also generate organic effects such as grass, trees, and leaves. What makes Combustion's particle system so downright cool is its interactive feedback. Let's say you load the built-in Smoke library in the Particle Controls panel. You get a preset list of different smoke effects (Basic, Wispy, Heavy, and so forth) and a preview window. Just click and drag in the preview window to move the virtual smoke emitter around. This is not only a great way to see the effects of the particles, but a lot of fun. You just won't find this level of interactivity in other effects programs.

How fast is Combustion? We rendered one of the included tutorials on an iBook 500MHz G3 and a Dual 500MHz G4. Since Combustion is optimized for multiple processors and is AltiVec aware, we expected—and found—a pretty big difference between the two machines. On the iBook, the render time was 9 minutes, 22 seconds. On the Dual G4, it was 3 minutes, 55 seconds.

So the program is great and all, and easily deserves a *Freakin' Awesome*, but what about the price? At \$4,999, it's pretty much out of the hands of consumers. Will professionals get their money's worth? Combustion is the baby in Discreet's family of industry-leading special effects and compositing tools, consisting of Flint, Flame, Inferno, Fire, and Smoke, or what Discreet calls FFI/FS. It's a tight clan, with a high level of interoperability. Its members use the same format across the board for many operations, such as keying and color correcting, meaning you can start a Workspace in Combustion and transfer it to FFI/FS. Ultimately, Combustion thrusts a Mac foot inside the door of the industry, where we can expect to see more Macs involved—which in itself is freakin' awesome.

—Andrew Tokuda

good news: Beats current crop of compositing software hands down. Excellent keying tools. Particle tools are high quality and fun to use. **bad news:** Too expensive for hobbyists.



The smoke effect in the Particles Operator isn't just realistic, it's fun to use.

Stylus Color C60

hardware



Company: Epson

Contact: 800-463-7766, www.epson.com

Price: \$99 (SRP), \$79 after rebate

Requirements: Power Mac, Mac OS 8.5.1 or later

We wouldn't call it a workhorse, but the Stylus Color C60 churns out great-looking photos and eminently readable text.



PHOTOGRAPHY BY MARK MADEO

Just when you thought Epson's righteous line of inkjet printers couldn't get any better, along comes the C60. It's essentially the runt of Epson's litter, retailing for under \$100, but true to its Stylus Color kin, the C60 prints text, graphics, and color photos faster and cleaner than you'd expect at this price.

Setup is brainless: The poster-size quick-start guide and pamphlet-thin manual are generously illustrated with clear, simple diagrams. We got this printer



We're not thrilled with the C60's ink-delivery setup, but since it's a sub-\$100 printer, we won't complain too much.

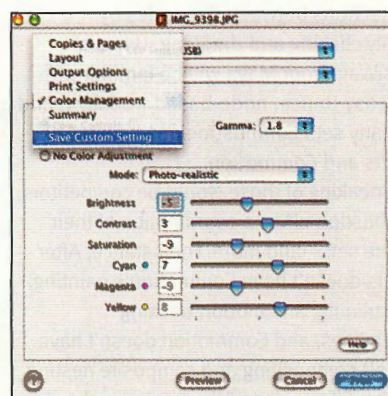
up and running (from unpacking to driver installation) inside 15 minutes. In the unlikely event that you have trouble setting up the C60, the included CD has a series of QuickTime movies and a thorough hypertext reference guide to tell you all about the printer.

The most likely cause of *setupus interruptus* is the need to run out and buy a USB cable: Epson boneheadedly doesn't include a USB (A-to-B) cable in the box.

Another thing you might have to procure yourself is the Mac OS X driver. At press time, none of the software on the included CD—a printer driver and Epson Film Factory (for photo editing and management)—runs natively in OS X. We'll gladly forgive this omission, simply because we're glad the driver exists at all (it's free at <http://support.epson.com>). And the C60's OS X driver lives up to the standards of stability and usefulness we've come to expect from Epson's recent printer drivers—almost. It doesn't provide the printer-maintenance features (such as Print Nozzle Check, Head Cleaning, and Ink Monitor) offered in Epson's pre-OS X drivers.

We wanted to task the C60 with Apple's "OS X Server Administrator's Guide," a 354-page PDF document, but quickly realized this printer isn't intended for such a massive job. For starters, the paper feed only holds about 100 sheets of blank paper; on the other end, we were sure the pages would slide right off the short, slightly curved-up output tray, but happily it proved us wrong.

In normal, 360-dpi mode, the first 50 pages came out in 12 minutes; in Economy mode, the next 50 pages came out in 6 minutes—including the minute or so it took to add more paper. The downside of



Epson's Mac OS X driver looks great in Aqua, even without the standard printer-maintenance features.

Economy mode is that it produces hard-to-read, light-gray text and faint graphics.

Then we loaded a sheet of Epson's Premium Glossy Photo Paper and cranked up the C60 to maximum quality (2,880 dpi). Exactly 21 minutes later, we were admiring a photo-quality 8-by-10-inch print, a little soft on fine detail and color gradation, but better than we expected from a bargain printer. In a more expensive unit, we'd complain more about the printer's ink setup: one cartridge holds black ink, and another holds all three colors (we prefer individual color cartridges). Furthermore, when either cartridge runs dry (even if just one color runs out), you can't print anything until you replace it—simply removing it (if you just want to print black text, for example) won't work.

You might wonder how Epson can break even selling the C60 for under \$100, but once you start buying fancy photo paper and replacement ink (available from Epson), you'll be spitting out money as fast as the printer spits out great-looking pages.

—Niko Coucouvanis



The C60's output tray is short, squat, and surprisingly sturdy.

good news: Fast and easy to use. Great output for the price. OS X driver!
bad news: Cable not included. Old-style ink-cartridge setup.



Spider-Man

fun & games

Company: Aspyr

Contact: 512-708-8100, www.aspyr.com

Price: \$39.99 (SRP)

Requirements: 400MHz G3, Mac OS 8.6, 64MB of RAM, ATI Rage 128 or better graphics card, game pad (highly recommended)

Attention, comic-book fans. Feel those Spidey senses tingling? It's time to slip into a famous superhero costume, strap on a couple of web cartridges, and save the world from villainy.

Spider-Man is a slick third-person action-adventure with flashy fighting moves that features Spidey, the popular web-slinging, Marvel Comics hero who has entertained American youth for decades with his comic-book capers, newspaper strips, TV series, and a new big-screen movie.

Spider-Man's alter ego, as anyone can tell you, is Peter Parker, a young journalist once nibbled by a radioactive spider. That atomic spider-bite infected Parker with all kinds of powers, including spider-like agility, superstrength, and a tingly spider sense that warns him of impending danger.

Now you can be the crime-fighting Spider-Man. As Peter Parker, you attend an important meeting where Otto Octavius, also known as Dr. Octopus, is introducing new technology he claims will benefit humanity. Suddenly, an impostor in phony Spider-Man tights drops through the ceiling and steals the new invention.

Spidey gets the blame, of course. It's up to you to dodge cops and villains while you use your superhero powers to clear Spidey's good name. You'll fight gaggles of henchmen, rescue hostages, defuse bombs, solve puzzles, and face formidable boss enemies through 34 levels. The henchmen are pretty dumb and easy to handle, but bosses, including such cretins as Rhino, Venom, Scorpion, Carnage, and Mysterio, are tough adversaries.

Fighting moves are plentiful in this 3D-roaming world, and the melee action is a real kick. The true excitement, however, comes in calling on spider powers to leap chasms, crawl on ceilings and walls, shoot webs at villains, and swing from building to building on long silken threads. There's a multilevel training section to test and improve your abilities. You can play with four levels of difficulty, including a simplified Kid Mode. As you play, you unlock classic comic book covers from the Marvel series, alternate Spider-Man costumes (each with its own properties), and a character viewer that will give you 3D images of Spidey's worst enemies and best friends, complete with biographies.

The game's controls could be easier. Originally designed for PlayStation, Dreamcast, and Nintendo 64, Spidey plays well on the Mac. And while playing via the keyboard or a joystick will work, you need at least eight control buttons for all the fighting-move combinations, so without a game pad, play is awkward at best. The catch is that



Spider-strength comes in handy when you need to carry a big, heavy bomb away from innocent bystanders.

game pads work via InputSprockets, which Mac OS X doesn't support yet. But the game is cool either way; if you don't already have a USB game pad, go buy one—even if it doesn't include Mac drivers, USB Overdrive (\$20, www.usboverdrive.com) lets you use any USB pad on a pre-OS X system, and someday it'll do the same in OS X.

In addition to pad-dependent controls, the story is linear, and graphics are flat and underwhelming. Nevertheless, the game captures the spirit of classic Spider-Man comics and weaves a web of pure gaming enjoyment. If you're down with Spidey, you'll chuckle over the basic silliness of the story and swing straight into the action.—*John Lee*

good news: Classic comic fun. Tons of cool Spidey powers, tricks, and costumes. **bad news:** Awkward keyboard controls. Mediocre graphics.



...Does Whatever a Spider Can...

Spider-Man can jump, grab, punch, and kick. He can also shoot webs, climb walls, zip across ceilings, and pounce

from above. Eight buttons, linked in combinations, give you access to almost 20 specialized fighting moves.



MojoWorld Generator 1.1

design & graphics

Company: Pandromeda

Contact: www.pandromeda.com

Price: \$249 (SRP)

Requirements: 350MHz G3, Mac OS 9 or later, 100MB of RAM, 16MB graphics card

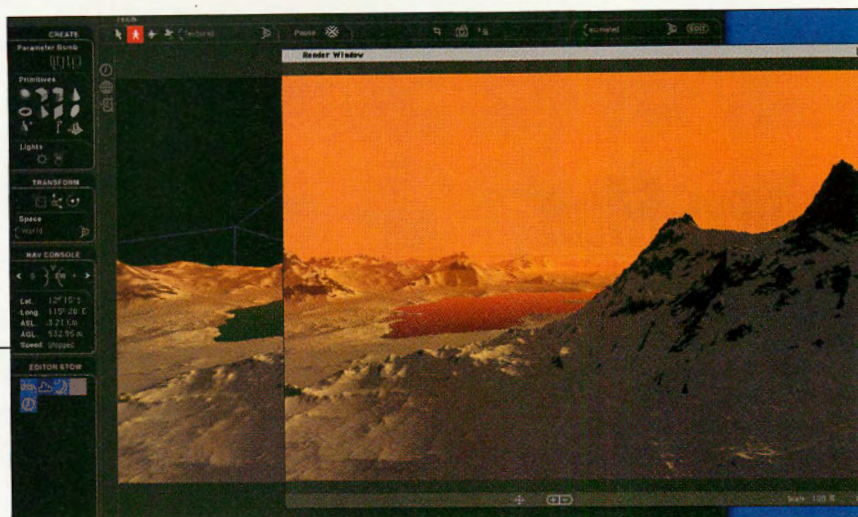


The vast world of 3D software includes many specialty packages for character modeling, high-end surface rendering, and in the case of MojoWorld, mathematical landscape generation. What sets this software apart from the well-known Bryce and other landscape generators is that MojoWorld turns user-defined parameters into complete, mathematically generated planets. The creator of these planets can then explore, animate, and further detail them. Other landscape generators only create specific areas defined by the user.

One of the first things you'll notice about MojoWorld is its very modern user interface, which fits together in an intricate puzzle of conceptual design. With abundant slider controls and nested menus, MojoWorld's look and feel more closely resembles a video game's than a traditional 3D package's. As with many over-the-top design efforts, MojoWorld's user interface makes sense about as often as it is confusing, making some features too intimidating for new or casual users. Still, the design conventions are consistent enough to make the whole package fairly intuitive after a little practice. And overall, the design is pretty damn cool.



Fast renders give you a quick, accurate preview of the details you're creating.



MojoWorld makes planet-building easy: You just define the desired characteristics and watch your world build itself.

MojoWorld is not a 3D modeler in the traditional sense. The primary difference is that you will not build your landscapes by moving points and polygons around in 3D space. Instead, MojoWorld generates the environment for you as you adjust a long list of parameters such as sea level, atmospheric density, cloud color, mountain-peak altitude, texture type, and time of day, to name just a few. MojoWorld continuously updates a low-detail model of the landscape in real time as you modify your world's characteristics. This is a welcome visual aid, since the numbers involved are often very large and it's hard to imagine the results. Frankly, much of the world-creation process is so easy that it feels like you're cheating somehow.

As you go about creating your world, you can navigate it in real time using options such as the Walk mode, which lets you cruise just above your world at low speeds, or the dizzying Zero-G mode, which enables you to fly at any altitude. One of the coolest things about MojoWorld is that you never know exactly what you've created until you

go exploring. Jagged mountain peaks, vast valleys, and intricate waterways are just a few of the surprises you'll discover. And with Generator's full suite of traditional 3D primitives (boxes, cones, spheres, and so forth) and model-import features, you can even add some manmade geometry (houses, people, and so on) to your world.

So once you've mastered the user interface and created a world to your liking, what can you do with it? MojoWorld outputs multiple levels of detailed renderings and animated fly-by scenes in the form of QuickTime movies. You've also got the option of sharing your world with other Mojonauts via the MojoWorld Web site, where you'll find galleries of user-created stills, QTVRs, and QuickTime movies. All you need to do is build your world, and that's the fun part.—Patrick Baggatta

good news: Impressive results at any skill level. **bad news:** Fancy interface can be confusing.



Try Before You Buy

Like many forward-thinking software developers, Pandromeda offers a free version of its high-end software. MojoWorld's free little sibling, Transporter, exports stills and QuickTime movies with a Pandromeda logo and is missing many of the high-end features found in the full Generator, but Transporter is still an impressive (and fun) package. A \$29.99 upgrade to Transporter Pro eliminates the logo. Download Transporter from Pandromeda's site, and get an eyeful of others' work in the MojoWorld galleries.



The amazingly simple slider controls enable even novice users to create a world of their own in no time.

Backup

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and Hardware Solution!*

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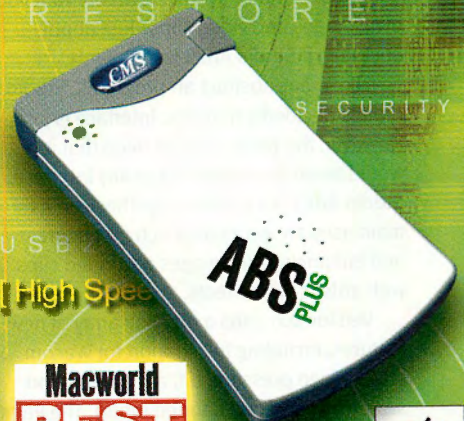
[FireWire]

BOOTABLE

RESTORE

SECURITY

USB 2
[High Speed]



Macworld
**BEST
OF SHOW**
2001

RELIABILITY
SIMPLE



Conflict Catcher 9.0

utilities

Company: Casady & Greene

Contact: 800-359-4920 or 831-484-9228,

www.conflictcatcher.com

Price: \$79.95 (SRP), \$29.95 (upgrade from version 8)

Requirements: Power Mac, Mac OS 8.6–9.x

If you've ever been dumbfounded by the contents of your System Folder, Conflict Catcher 9 is the utility you need to bring order to chaos. Don't let its name fool you: CC9 is useful every day—not just when your Mac goes mad.

CC9 does everything the Mac OS's included Extension Manager does and much more. It provides an easy way to turn on or off (individually or in linked groups) anything that might cause your Mac to hiccup, freeze, or crash—including fonts, extensions, control panels and strips,

Conflict Catcher's streamlined interface makes it faster and easier to manage everything in your System Folder.

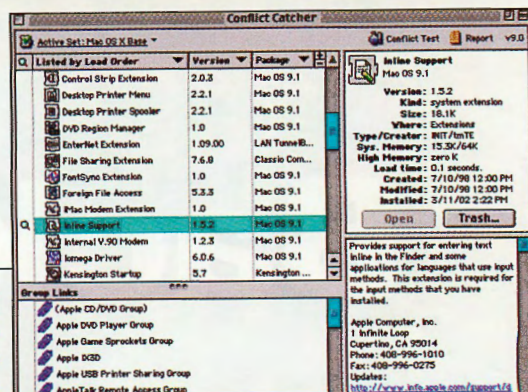
Apple Menu items, contextual menus, plug-ins, Location Manager modules, and startup and shut down items. Whenever possible, CC9 thoughtfully includes a description of each item's purpose and an update URL. Especially useful is the ability to create different startup sets for specific tasks, users, and locations. We love CC9's ability to merge old and new System Folders, which let us do a Clean Install without losing our custom preferences.

CC9 makes isolating conflicts faster and easier. New features include Conflict Assistant, which walks you through the troubleshooting process; a new option to fix all damaged files found in your System Folder; System Report (like a robust

Apple System Profiler), which includes USB and FireWire device info; and Intermittent Problem Log, which tracks the state of your system to help preempt future conflicts.

The only drawback to CC9 is its price. The \$29.95 upgrade is a no-brainer for legacy users, but the \$79.95 retail price may prompt CC virgins to stick with the free but far-less-capable Extension Manager instead.—Owen W. Linzmayer

good news: Updated Reference Library with descriptions and updated URLs. Streamlined interface. Money-back guarantee.
bad news: A bit pricey.



Studio Artist 2.0

design & graphics

Company: Synthetic Software

Contact: 888-808-4188 or 415-864-6582,

www.synthetic.com

Price: \$379 (SRP), \$179 (upgrade)

Requirements: Power Mac, Mac OS 8.5 or later, 32MB RAM, QuickTime 4 or later

What do you get when you mix cognitive neuroscience and music synthesis theory with your own images and video clips? Just about anything, if Studio Artist is in the mix.

Like many abstract art programs, Studio Artist's decidedly non-Mac interface is jarring. However, the program is so deep that it would seem overwhelming in any interface. Studio Artist is a graphics synthesizer: Its main uses are generating rich 3D textures and enhancing still images and video clips with artistic filter effects.

Version 2.0 adds a dizzying array of new features, including full support for Wacom tablets (pen pressure, tilt, and orientation sensitivity, and two-handed input). The Paint Synthesizer now includes Particle Paint for

Studio Artist makes a master impressionist out of anyone—we call this one Green Bean.

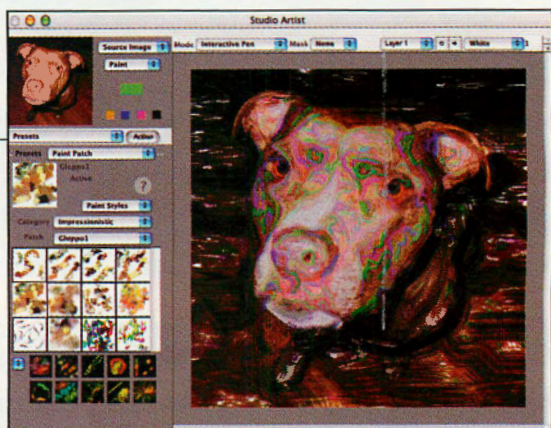
liquid effects, Photo-Mosaic brushes, and a slew of new Paint Presets (2,000 total, including Simple Paint, Crayon, Watercolor, and...um, Creamy Tubular Strokes). Other presets cover image processing, texture synthesis, and Paint Action Sequences (think Photoshop Actions), all of which are fully editable. Another welcome addition: The package includes eight full hours of video (QuickTime) tutorials.

So how does it work? You pick a source image, and Studio Artist opens it in a canvas where you apply your choice of filters (paint styles, textures, distortions, etc). You can apply these manually using your cursor or just press the Action button and watch Studio Artist apply your effect stroke by stroke. You

can make your recreation as subtly different from your original or as whacked-out (er, abstract) as you like.

Studio Artist is no lightweight; our 400MHz G4 lagged under the strain of even a small (100K) source image, and the program eats RAM for lunch. Still, we could spend days singing Studio Artist's praises. Check out the trial version on this month's Disc—knock yourself out, but don't forget to sleep occasionally.—Niko Coucouvianis

good news: Nearly unlimited artistic options. Good for simple fun or serious art.
bad news: Will cripple the indecisive. Needs a fast Mac with lots of RAM.



ML-1210

hardware

Company: Samsung

Contact: 800-726-7864 or 201-229-4000,

www.samsungprinter.com

Price: \$199 (SRP)

Requirements: Power Mac, Mac OS 8-9.x or 10.1 or later

Not long ago you saw laser printers only in busy corporate offices: They were way too big, noisy, and expensive for home use. These days, companies like Samsung, Brother, and Canon are offering truly *personal* laser printers. Samsung's ML-1210 packs 8MB of RAM, a 66MHz processor, 150-sheet capacity, USB convenience, and Mac OS X support into an affordable device the size of a bread box (and almost as quiet).

At 13 by 13.9 by 9 inches, the ML1210 fits right on your desk. The first thing you'll want to print is the PDF manual. If we were more accustomed to installing toner cartridges, we'd applaud Samsung for saving a tree; as it is, we'd appreciate either a better quick-start poster or a preprinted minimanual. For the record, installing the cartridge is much easier than the quick-start guide's diagrams make it look.

At the default settings (grayscale, 600 dpi, Toner Saver turned off), that 127-page manual veritably flew out of the ML-1210 in 25 minutes. While 5 ppm (pages per minute) doesn't sound impressive, the manual pages are rife with diagrams, screenshots, and simple graphics, all of which take time to process. Plain-text documents at more modest settings (black and white, 300 dpi, Toner Saver turned on)

matched the printer's advertised rate of 12 ppm, and to our eco-friendly delight, we saw no reduction in text quality or readability with Toner Saver enabled. Kudos to Samsung for making this feature so easy—you activate it by pushing the Toner Saver button on the printer's front (right next to the Cancel/Reprint button, which allows you to cancel or reprint a job on the fly even if you've turned off the computer). To our aural delight (and our office mates'), the ML-1210 is whisper quiet—a hoarse whisper, but quiet nonetheless.

Samsung smartly built in a second output method for printed pages. Instead of using the regular stand-up tray on top of the machine, you can open an output slot on the printer's front, which causes pages to come straight off the roller and drop into a pile in front of the printer—just the ticket for printing on envelopes, card stock, transparencies, and other nonstandard media. You'll also find a manual sheet feed for alternative media, adjacent to the regular paper tray.

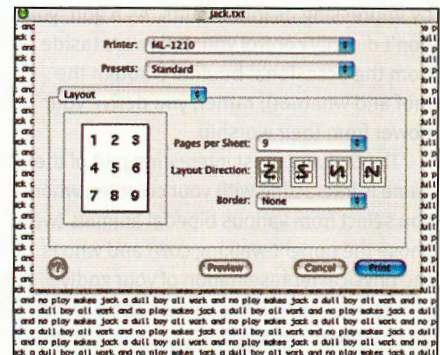
The big question for printers these days is whether they have Mac OS X support, and in this case the answer's a resounding yes. A quick trip to Samsung's Web site (and a quick 1.1MB download) got us into the OS X printing party, but the driver should come in the box by the time you read this. In action, the OS X driver matches Samsung's capable Mac OS 8/9 driver feature for feature, and even beats the latter on one count: It has 16-up printing, not just 4-up (it can condense 16 pages onto 1).

We have almost nothing bad to say about the ML-1210. Apple's USB Printer Sharing covers your network-printing needs in OS 8 and 9, but not in OS X—

Welcome to the era
of the personal laser printer:
Samsung's personable ML-1210 is
small, cheap, fast, and quiet.



PHOTOGRAPH BY MARK MADEO



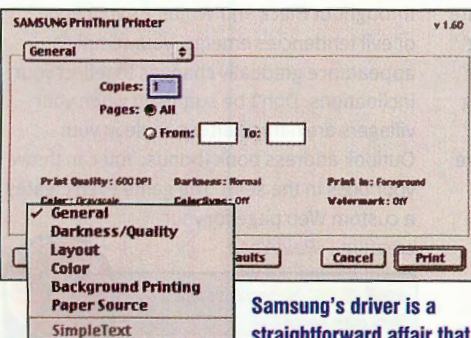
Not only does it support Mac OS X, but the ML-1210 can print up to 16 pages on a single sheet for your thumbnail-indexing pleasure.

since the ML-1210 lacks an Ethernet port, you can't share it in OS X. We hate sharing anyway, but we're not so forgiving about the fact that Samsung follows an annoying trend among peripheral manufacturers by skimping on cables. After you lay down two bills for a piece of hardware, is it unreasonable to expect to find a required connector cable (maybe \$5 wholesale) in the box? Apparently so. Some users might also find the maximum page width (8 3/4 inches) and onboard RAM (8MB) limiting, but what do you want for \$200?

It's hard to get too excited about a laser printer, but the ML-1210 handled everything we threw at it, even PostScript (via emulation). It's an excellent—and yes, exciting—choice for anyone who wants to print mountains of text documents quietly and quickly.

—Niko Coucouvanis

good news: Whisper-quiet. Freakin' fast. Affordable. Mac OS X driver!
bad news: No USB cable included. No sharing in Mac OS X.



Samsung's driver is a straightforward affair that summarizes your current settings right up front.

Black and White

fun & games



Company: Graphic Simulations

Contact: 972-386-7575, www.graphsim.com

Price: \$50 (SRP)

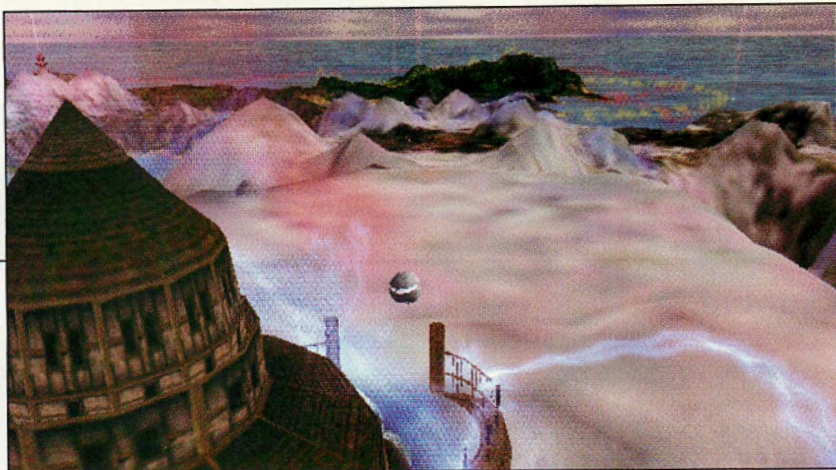
Requirements: 333MHz G3, Mac OS 8.6 or later, 128MB RAM, 750MB of free disk space

Designed by Peter Molyneux (of *Populous* and *Dungeon Keeper* fame), *Black and White* is a god sim wherein you vie for control of the land by impressing its inhabitants. As a god, you don't directly control your followers (aside from the occasional boulder through the roof and whatnot); rather, you derive your power from their worship.

The first and most interesting part of the game is interacting with your creature, whom you select from various bipedal animals (we chose the upright-walking cow) and who is the physical representation of your godly power. Your minion begins its earthly life as an untrained servant, and you train it in the ways of worshipper management and resource control. You teach the creature specific actions by leashing it to your hand (your cursor) and demonstrating the action. When your creature gets it, a lightbulb appears above its head, indicating that it has learned the trick. The tough part is educating the beast about when it's appropriate to do the things it has learned—you reinforce its behavior positively by stroking it, negatively by smacking it around (or both—oh, the joys of mixed messages!). You can train your creature to perform complex tasks, such

as aiding and dancing with your devoted villagers, and eating or otherwise terrorizing nonbelievers in towns outside your sphere of influence. Training gets tiresome, though, because you must keep a watchful eye on your animal if you want to educate it effectively.

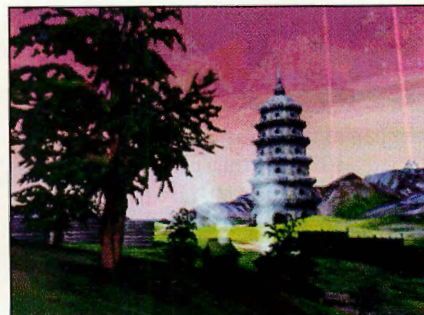
Adorn your creature with a custom tattoo and teach him how to eat sheep (or villagers, bwahahaha).



In *Black and White*, you don't have to wait until the seventh day to survey your domain and say, "This is good."



Black and White is the stuff ego trips are made of—bask in the worship of your followers.



The more worshippers you win over, the bigger your temple grows.

One Game, Two OSs

If you switch between Mac OS 9 and Mac OS X frequently, you'll want to trick *Black and White* into using the same game data under either OS. All you need to do is make an alias of the *harddrive/System Folder/preferences/Lionhead/Black and White* folder and put it in the *harddrive/Users/username/Library/Preferences/Lionhead* folder—or vice-versa if you first started the game in OS X.

The meat of the game is the busywork of keeping your villagers happy (or scared into submission, if you prefer) by providing food, wood, and the occasional miracle. Oddly, as a god, you can only hold one thing or perform one action at a time, so allocating resources and directing villagers gets a little tedious (a well-trained creature is a big help here). Taking over towns that aren't under your influence requires that you demonstrate your godly might in various ways, including raining fireballs from above and planting crops. Of course, once a population is flying your colors in its town square, you must defend it against attacks and the persuasive powers of other gods and their creatures. And just as in real life, villagers never stop complaining—their constant whining is enough to drive any deity to the bottle.

Although it's Carbonized, *Black and White* seems to prefer the familiarity of Mac OS 9—the 1.1.3 patch helps (it's free at www.graphsim.com), but we still had to

stand by and watch the game duke it out with OS X over monitor resolution every time we started up. And don't expect to hop online and out-god your Wintel buddies just yet—though the printed manual claims the availability of a multiplayer support patch in March 2002, we're still waiting.

In addition to the unusual and compelling gameplay, clever little touches spring up throughout *Black and White*: As your good or evil tendencies emerge, your temple's appearance gradually changes to reflect your inclinations. Don't be surprised when your villagers are named after people in your Outlook address book (bonus: You can throw your boss in the seal). The game even creates a custom Web page for your creature.—Paul Yoon

good news: Innovative design.

Very open ended.

bad news: No multiplayer. Hefty system requirements. Funky port job.



Mathematica 4.1

productivity

Company: Wolfram Research

Contact: 800-965-3726 or 217-398-0700,
www.wolfram.com

Price: \$1,495 (SRP), \$139.95 (student version)

Requirements: Power Macintosh, System 7.5.3 or later,
32MB of RAM, 200MB of hard disk space

The release of a Mac OS X-native version of Mathematica marks a homecoming of sorts for the venerable symbolic-computation tool, designed to handle algebra, calculus, and other parts of mathematics that go beyond simple number-twiddling. Early in its life, Mathematica was a bundled package on the NeXT cubes. While Wolfram Research scrupulously kept Mathematica as platform agnostic as possible over the past decade and a half, Mac OS X is in a sense Mathematica's home turf. It shows. Mathematica runs better on Mac OS X in its first release than it ever ran on older Mac OS variants, even after a decade of refinement.

The basic reason for the speedup is Mathematica's somewhat unusual bipartite structure. Mathematica is composed of two separate applications: a notebook, which provides a friendly environment for entering your computations and viewing your graphs, and a kernel, which handles the computational grunt work. Under older Mac OS versions, this structure ran headlong into the system's fundamental inability to walk and chew gum at the same time—even on souped-up monster Macs, the kernel would typically take more than a second to communicate with the notebook. Worse, having two separate applications turned the usual memory-fiddling into a nightmare—if you ran into memory problems, you had to decide whether to hand more memory to the kernel or to the notebook interface.

Under Mac OS X, Mathematica runs the way it should. Calculations flip to the kernel and back quickly, and the system handles memory management, so you don't have to keep your eye on the little Kernel Memory column graph (once the bane of the Mac-based mathematician's life).

Living in Mac OS X provides some other advantages: You can now launch the kernel from the Terminal, so you can run two

From NeXT to now, Mathematica has dominated the symbolic computation scene.

Mathematica kernels simultaneously. (You can't run more than two, though, unless you buy a license permitting you to run more. This prevents you from buying one copy of the program, sticking it on a Dual GHz monster Mac, and sharing it with everyone in your building). Linking to Mathematica from C code to handle symbolic tasks is also quite a bit quicker—OS X simply multitasks better. Wolfram plans to build a few Mac OS X-specific features into future versions. Version 4.2, for example, will take advantage of the Quartz engine when drawing its figures.

Unfortunately, Mathematica has grown beyond any manual's powers of

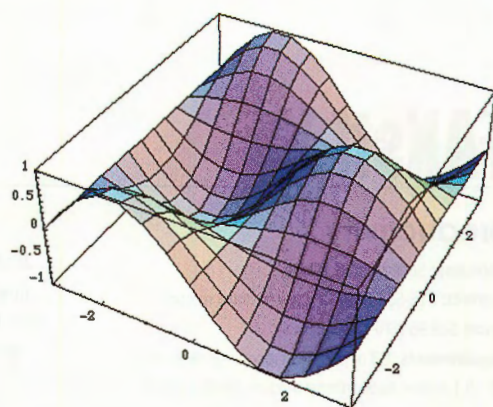
description—even its own thick-spined hardbound manual. Descriptions of some functions are perfunctory at best, and a few errors have crept in over time.

Mathematica's emergence as a native Mac OS X application gives us hope for a revival of the nearly moribund Macintosh science and technology market. We look forward to seeing what Wolfram has in store for the future.—Ian Sammis

good news: Quick kernel-notebook interface under Mac OS X. Very powerful package.
bad news: Even 1,000 pages isn't enough manual for this beast.



```
In[5]:= Plot3D[Sin[x] Cos[y], {x, -π, π}, {y, -π, π}]
```



Out[5]= -SurfaceGraphics-

Mathematica Obscurities

As is the case with many serious application packages in their second decade, some...er, interesting bits of code have drifted into Mathematica over the years. Here are a couple of things to try when you're not feeling too serious.

```
In[1]:= Solve[{0 - c^2 == 0, 0 - c^2 == 0}, {c, 0}]
Out[1]:= {{0 -> c^2, 0 -> c^2}}
```

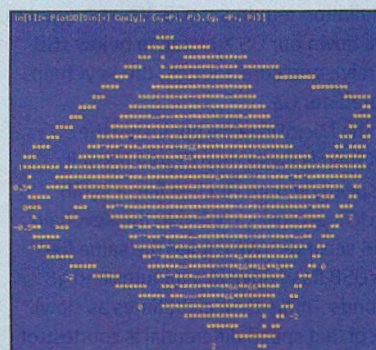
```
In[4]:= ParametricPlot3D[{0, c^2, c^3},
  AspectRatio -> Automatic]

```

```
In[1]:= Solve[{0 - c^2 == 0, 0 - c^2 == 0}, {0, 0}]
Out[1]:= {{0 -> c^2, 0 -> c^2}}
```

```
In[4]:= ParametricPlot3D[{0, c^2, c^3}, {0, -1, 1},
  AspectRatio -> Automatic]
Type \[FreakedSmiley], \[SadSmiley], or
\[HappySmiley]. These work as variable names, too!
```

Now that's a twisted cubic!



In the Terminal, type /Applications/Mathematica\ 4.1.app/Contents/MacOS/MathKernel (if you've installed Mathematica in the Applications folder). You'll see the Mathematica kernel in its purest form—as those of us who started on terminals knew it. Try making a 3D plot to see how thorough the folks at Wolfram have been (although an ASCII version of a 3D plot can be hard on the eyes!).

Compare this graph to the one presented by the notebook (see top of page).

FAXstf X

productivity



Company: SmithMicro Software

Contact: 816-554-9397 or www.smithmicro.com

Price: \$89.95 (SRP)

Requirements: G3 or faster (G4 recommended), Mac OS 10.1 or later, Apple internal modem, 30MB of RAM

If you need a native Mac OS X fax application, FAXstf X is your only option. However, the lack of support for pre-OS X apps and the limited group-faxing feature almost made us say *Yeah, Whatever*.

In boarding the Mac OS X train, SmithMicro didn't just Carbonize its FAXstf 6 software. Instead, the company built a Cocoa application whose interface resembles Apple's Mail, complete with a tray that pops out from the application window. FAXstf also uses Apple's bare-bones Address Book app to manage your contacts.

Just the fax, ma'am. SmithMicro's new Mac OS X software gives you basic functions without the bells and whistles of its Mac OS 9 version.

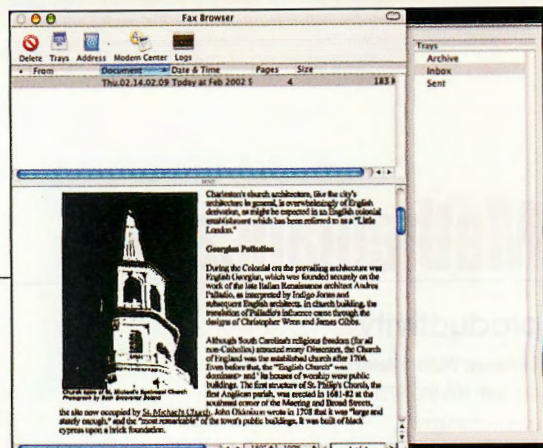
Installation is quick and you don't have to restart your Mac, but why is there no setup assistant? You have to do the entire setup manually, including making Mac OS X's Print Center recognize your modem as an output device. We also wish SmithMicro had included more printed documentation than a four-page quick-start guide.

FAXstf saves your faxes as good-looking PDF files, but there's one big catch: You can't fax from pre-Mac OS X applications. And sending faxes to a group of recipients will prove challenging, since FAXstf doesn't support the Groups feature of Apple's Address Book. Instead, you must manually put your contacts in a single category to

send a fax to all of them at once.

Like those of other Mac OS X apps, FAXstf's interface looks pretty and runs well, but it lost too many features in its migration from Mac OS 9. As a stopgap, it's fine, although we'd like to see better support for group faxing and for apps that predate Mac OS X. But since it's currently the only Mac OS X fax software out there, let's just call it a borderline *Spiffy*.—Gene Steinberg

good news: Quality faxes. Well integrated with Mac OS X. **bad news:** Inconvenient group faxing. Doesn't work with pre-Mac OS X apps. Restricted to Apple modems.



FireWire KeyChain

hardware



Company: WiebeTech

Contact: 316-744-8722, www.wiebetech.com

Price: \$99.95 (SRP)

Requirements: Power Mac with FireWire port, Mac OS 8.6 or later

The FireWire KeyChain is worlds faster than USB-connected flash drives—but we wouldn't call it zippy.

What's that attached to that iBook? It's a dongle...it's a keychain...it's the FireWire KeyChain! WiebeTech takes the ultra-portable storage craze to the next level with the FireWire KeyChain, sized at a wee 3/4 by 1 3/4 by 2 1/3 inches. The enclosure ships sans memory; once you unscrew the back-plate and add your own CompactFlash card (up to 512MB; \$429.99 at www.sandisk.com) or IBM MicroDrive (up to 1GB; \$369 at www.ibm.com), it's a plug-and-play affair on Mac OS 8.6 and later systems.

We stuck a 1GB MicroDrive in the KeyChain, and it was not only plug-and-play

but also bootable (Mac OS 9.2). WiebeTech says you can even boot Mac OS X from the KeyChain, though you'll have to custom install it since, technically, the default installation requires 1.5GB. We managed to pare down our OS X install to below 1GB (barely), and sure enough, the KeyChain booted our G4.

The MicroDrive we put inside the KeyChain is faster than CF, but it's still no speed demon: Our test file, a 55MB QuickTime movie, copied to the KeyChain in 26 seconds. (We copied the same file to a USB flash drive in 3 minutes and 38 seconds—more than eight times as slow). Part of that speed differential is courtesy of the KeyChain's Oxford 911 FireWire Bridge:

the latest, greatest, and fastest bridge used in external FireWire drives.

The FireWire KeyChain is ahead of its time, but when CF and MicroDrives evolve to higher speeds, upgrading the KeyChain will be as easy as removing two screws and swapping the memory module. In the meantime, this cool little chunk of anodized aluminum is one sleek and slick (and relatively speedy) way to transport up to a gigabyte of data.

—Niko Coucouvanis

good news: Small and sturdy. User-configurable. Cool anodized aluminum case. **bad news:** Supported media is relatively expensive and s-l-o-w.



PHOTOGRAPH BY MARK MADEO

VisualRoute 6.0b

utility

Company: Visualware

Contact: 703-802-9006, www.visualware.com

Price: \$39.95 (Personal Edition), \$150 (Server)

Requirements: Power Mac, Mac OS X, MRJ 3.0

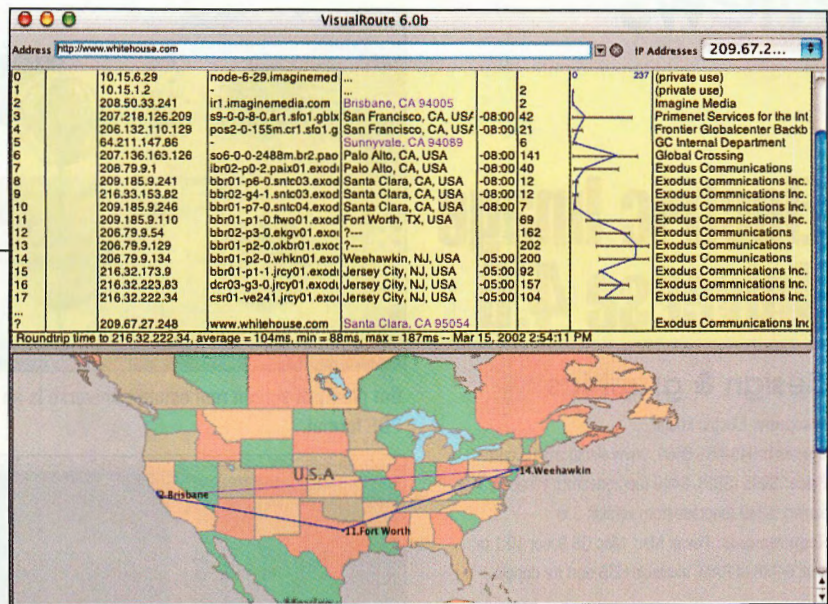
(Mac Runtime for Java, included with Mac OS X), Internet connection

Now that Mac OS X has transformed the Mac into a viable option for industrial-strength networking chores like network administration, serving, and hosting Web sites, we need some serious network-troubleshooting tools. Enter VisualRoute, an integrated graphical interface to some of the main command-line tools for investigating network activity—namely, ping, traceroute, and whois (if you're new to such terms, see "Ping-a-Lingo," right).

As you may know, Mac OS X's built-in Network Utility app provides point-and-click ping, traceroute, and whois tools, along with lots more—all of which command-line jockeys can do in a Terminal window with raw Unix commands. So why pay good money for VisualRoute with its wussy Java interface and interactive routing map? The operative word here is *visual*—VisualRoute provides the raw data (including the IP address, the node name, the location, the response time, and the name of the network at each hop) in both graphical and alphanumeric format, as well as a world map with lines drawn between the physical locations of the nodes on your route. Additionally, if you click a network or node-name listing, VisualRoute spawns a whois report from the appropriate domain registrar, so you know who is responsible for that network or node.

In addition to the friendly graphical interface, VisualRoute has another secret weapon in how it processes data routes. Traditional traceroute utilities follow the path linearly, progressing from hop to hop, but VisualRoute pings the nodes along the route in parallel—all at once—so you see the results much faster.

VisualRoute has a few other features that set it apart from the freebies; you can use the eMail Tracker (found in the Tools menu) to track down the source of spam or



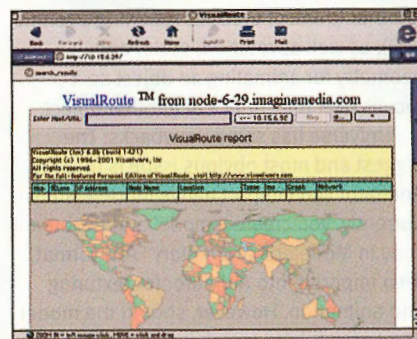
VisualRoute shows how your data gets where it's going and pinpoints the bottleneck when the network slows down.

other unsavory email and get the purveyor in hot water with its ISP or even the FBI (Incidentally, the FBI uses VisualRoute to track down criminals who operate via email).

Professional geeks will appreciate VisualRoute's server mode, which you can set up as a stand-alone server on a machine outside your network's firewall and use to monitor activity you otherwise couldn't access.

Aspiring geeks will find VisualRoute an easy way to explore their networks and connections (and those of others via the Internet—but we're not advocating that, as it's unethical at least and highly illegal at worst). Nongeeks probably won't have much use for VisualRoute; as casual geeks, we dig it.—*Niko Coucouvanis*

good news: Conveniently integrated network-monitoring tools. Good enough for the government. **bad news:** Doesn't do much you can't do for free. Can get you in trouble.



In Server mode, anyone can access your VisualRoute via a Java-enabled Web browser, but only if you grant access.

Ping-a-Lingo

If you're new to all this network jibber-jabber, here's a glossary of terms to help you understand the gloriously geeky VisualRoute:

Packet Data travels across networks and the Internet in small chunks called packets.

Node Every hardware device on the Internet is a node; this includes your own Mac, the routers between you and any Web site, and the server hosting a site.

Ping A check to see if a particular node is online, with the response time measured in milliseconds.

Router A physical device or piece of software that expedites the transmission of packets between multiple networks and/or the Internet.

Hop As a verb, *hop* describes how packets move between nodes; as a noun, it's the connection between two nodes.

Traceroute This command traces the route from one node (your computer) to another (a Web server) by pinging all the nodes in between and reporting the duration of each hop.

Whois This handy command-line tool reports the registered owner of an Internet domain or network.



Find a demo of VisualRoute 6.0b on the Disc.

Electric Image Universe 4.0

design & graphics

Company: Electric Image

Contact: 949-481-6660, www.electricimage.com

Price: \$995 (SRP), \$449 (upgrade from version 2.x or earlier), \$349 (upgrade from version 3.x)

Requirements: Power Mac, Mac OS 9.x or 10.1 or later, 64MB of RAM, available USB port for dongle



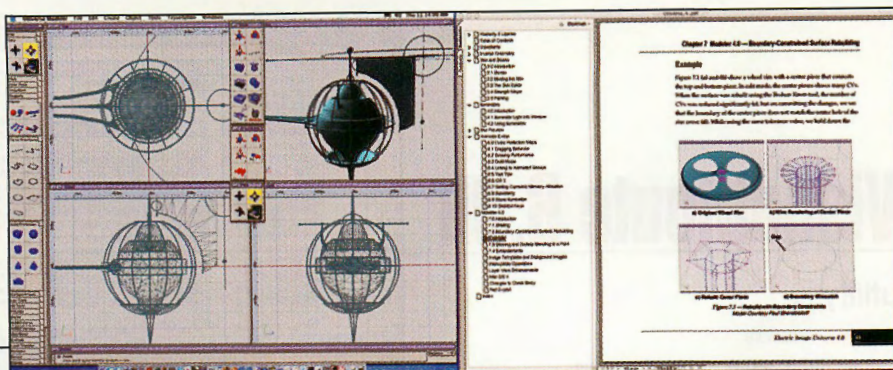
Few 3D applications are as highly regarded as Electric Image Universe. The latest release, version 4.0, offers Mac OS X compatibility, vastly improved character-animation tools, and new rendering features such as global illumination.

Capable of creating everything from detailed architectural walk-throughs to chrome-and-glass flying logos, Electric Image Universe (known simply as Electric Image before the company had any other products) has long been a staple in the toolbox of professional Mac 3D artists. Universe is known for its superior render quality and outstanding speed, and Electric Image continues to expand the program's feature set without sacrificing quality.

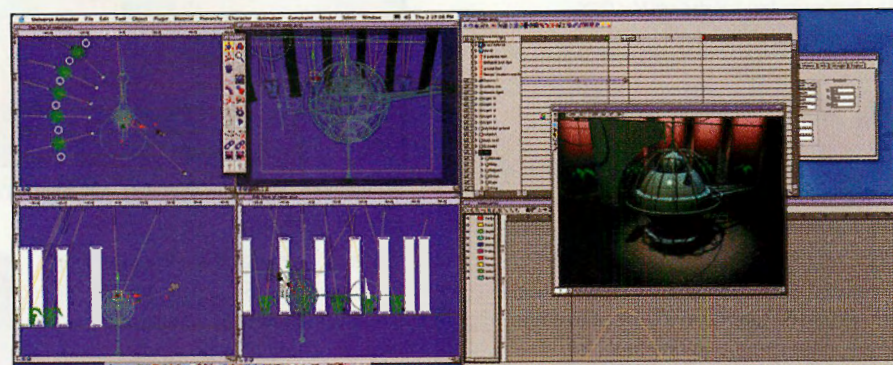
We installed Universe 4.0 on a 500MHz Dual G4 with 1.5GB of RAM running Mac OS 10.1.3. As part of the move to OS X compatibility, Electric Image has changed the dongle to the smaller MacHasp USB type. The thoughtful programmers also provide a QuickTime Component file for OS X on the CD. This allows any QuickTime-compatible application (such as QuickTime Player and Final Cut Pro) to open Universe's native Image file format.

Electric Image also put lots of effort into improving Universe's character-animation abilities. The results are two new modeling systems: *skinning*, which bases model deformations on an underlying bones structure, and *constraints*, whereby you can limit certain aspects of an object's motion. Once you've built a model in Universe's Modeler, you can animate it by moving its skeleton (bones); the geometry associated with those bones moves accordingly.

In version 4.0, Universe handles bones much better than it did in prior versions:



Got plenty of screen real estate? Universe is an excellent, deep program whose manuals come only in PDF format.



Animator is where you assign textures and light; just set the stage and put your models in motion.

Bones no longer depend on the skin, so your skinning isn't bound in the hierarchy. Animating a character through a skeletal structure is akin to making a puppet move, but without the physical constraints of the real world (look, Ma—no gravity!). Also, you can control the influence a bone has over surrounding geometry to the finest degree, which offers a tremendous amount of flexibility.

Universe 4.0's new constraint system is real-time and interactive, rather than depending on the precomputed values of Auto-Frames as in earlier versions. Constraints allow an animated character's feet to stay locked to the ground, for example, while the character moves and pivots. Other types of constraints include Auto Look, which allows one object to track another (think of eyeballs following a tennis ball), as well as rotation, scale, and geometry for animating an object so it moves over the surface of another object.

Universe has some drawbacks. The biggest and most obvious issue is that the Animator can't import native Modeler files. Currently, you create a model and export a copy in Modeler's proprietary FACT format, then import it into Animator for texturing and animation. However, should the model need any revision, you have to export a new FACT file from Modeler, import it into Animator, and start the texturing and animation process all over again. Rule of

thumb: Have the client commit to the model before proceeding to animation.

Also, the application doesn't supply any hard-copy manuals. We're fans of online documentation, but leafing through a paperbound manual helps a lot when it comes to software as deep as Universe. Given the electronic-only documentation, the lack of onboard help miffs us: Neither Modeler nor Animator offers a help menu; all you get are basic tool tips, which identify the tools as you mouse over their icons. Modeler has one advantage in the help department, though: a Status window at the bottom of the screen offers a short description of each tool and its use.

Despite these drawbacks, experienced users of this product should love the new version. The ability to run it under Mac OS X alone is worth the upgrade—the additional new features are icing on the cake. The folks at Electric Image are not backing down in the face of increased competition in the 3D space. Widely regarded as the cream of the crop when it comes to rendering quality and output, Universe 4.0 remains a powerful, top-notch package.

—Mike Caputo

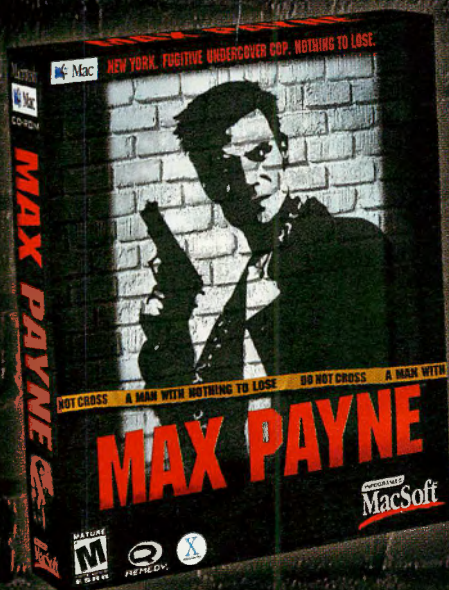
good news: Fast render engine. High-quality output. Character skinning and constraints. **bad news:** Animator and Modeler don't share file formats. No texturing in Modeler.



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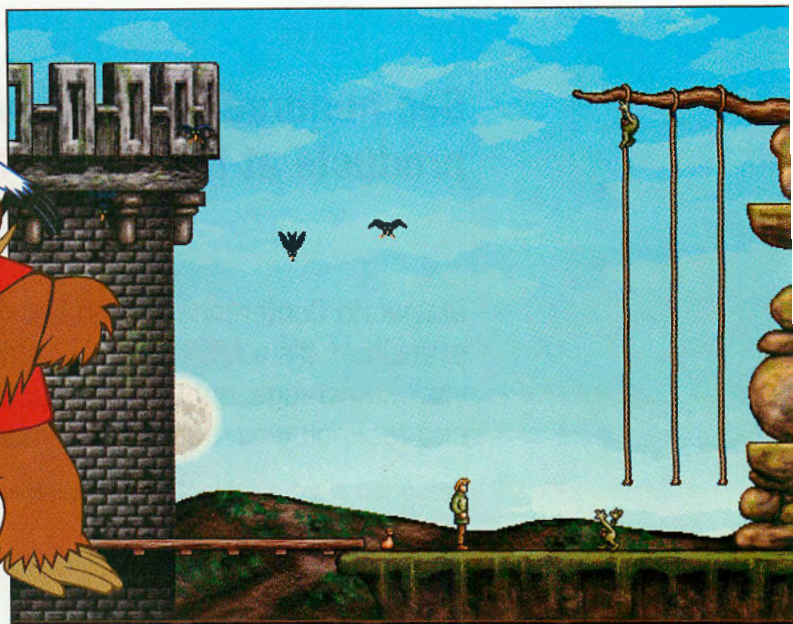
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powerplay

We're game, are you?



With those looks, no wonder Freeverse's *Burning Monkey* family plays solitaire.



The sun doesn't shine for long in Delta Tao's *Dark Castle*.

What's Old Is New

Face-lifts for Retro Games

With Mac OS X gaining momentum, developers are throttling full speed ahead to give old-school favorites some new Carbon pizzazz. The revamps leave intact the gameplay that kept these classics popular, and of course they're available for Mac OS 9 as well. —*Carrie Shepherd*

X Return to Dark Castle

Delta Tao (www.deltatao.com)

9 Available now

Back in the mid-1980s, we spent hours exploring the spooky 2D environs of *Dark Castle* on a black-and-white Mac SE (it had a whole meg of RAM!). We moved our character around via the keyboard

and did our shooting with a mouse. We battled bats, rats, and other Halloween-esque baddies, solving puzzles and picking up weapons and goodies along the way.

Return to *Dark Castle* includes all the original levels from the 1986 classic and its 1987 sequel, *Beyond Dark Castle*, along with many new levels, in one giant

nonlinear quest—complete with color. To defeat the Castle, you'll fight your way through scores of single-screen levels and search for mystical orbs—all leading up to a showdown with the Black Knight. The new title keeps the original's classic gameplay and traditional 2D graphics, but adds transparencies, shadows, and particle effects for sparks and dust.

Developer Z Sculpt Entertainment has been working on Return to *Dark Castle* for four years; now that it's finally done, you can spend the hot summer months in this dark, cool castle.

X Galactic Patrol, Galactic Patrol Special Assignment, Galactica Anno Dominari

9 Monkey Byte (www.monkeybyte.com)

Available now

Since we're on a 1980s kick, we're looking forward to *Galactic Patrol*, reminiscent of that decade's *Space Invaders*. This updated space shooter pits you against anything that moves onscreen. Enemies



Galactic Patrol's firefights remind us of our old Lite Brite toy.

Monkey Byte also brings *Galactica Anno Dominari* online. (The single-player version has been available for a few months now.) You build starships to colonize the galaxy, protect your

swarm toward you, behind you, and on all sides in this 3D world. As you progress, the 25 levels get progressively harder and the weapons get progressively better. *Galactic Patrol Special Assignment*, an update with new levels, is also in the works.



Climb, jump, and swing your way to *Dark Castle's* brew pub.



Too bad Monkey Byte's Galactic Patrol comes without intergalactic Raid.

territory, and defeat the other players in combat. You must manage your resources while battling other commanders, who are also trying to expand their empires. Previous multiplayer versions of Galactica have been LAN only. With true Internet play, you can now play against humans all over the (known) galaxy.

X Colin's Classic Bridge, Burning Monkey Solitaire III

Freeverse Software (www.freeverse.com)

9 Colin's Classic Bridge available mid-June 2002

Burning Monkey Solitaire III available June 2002

Freeverse Software has completely overhauled its 3D Bridge card-game engine for Colin's Classic Bridge. The company reworked the artificial intelligence and Carbonized the game for Mac OS X. Ditto for Burning Monkey Solitaire III, which includes new games such as three-card monty.

Other big news for Freeverse is the debut of GameSmith, an OS X-native gaming service that allows Mac and Windows gamers to play each other online. It's all part of bringing the classics to the 21st century.



Can Colin's cute characters make you the king of bridge?

Frag Your Face

CyberX-3D Skins Put You in the Game

What better way to spice up a game of Quake than to add your own visage to the carnage? New York-based CyberExtruder lets you create a 3D model of a 2D facial image (yours or anyone's) and add it to games like Unreal Tournament, Quake III Arena, The Sims (and available expansion packs), and the upcoming Max Payne.

Upload a digital image of your face (or someone else's) to CyberExtruder's Web site (www.cyberextruder.com) and watch as its CyberX-3D technology analyzes facial characteristics and converts the image to a 3D model. You can preview up to six images for free and pay as little as \$4.95 to get a file that pops easily into the games mentioned above. Check out CyberExtruder's Web site for more details on pricing and game compatibility.—NR



Tired MacAddict editors rejuvenate with a little Unreal Tournament combat.

SCREENSHOT OF THE MONTH

When Bots' Lives Flash Before Your Eyes



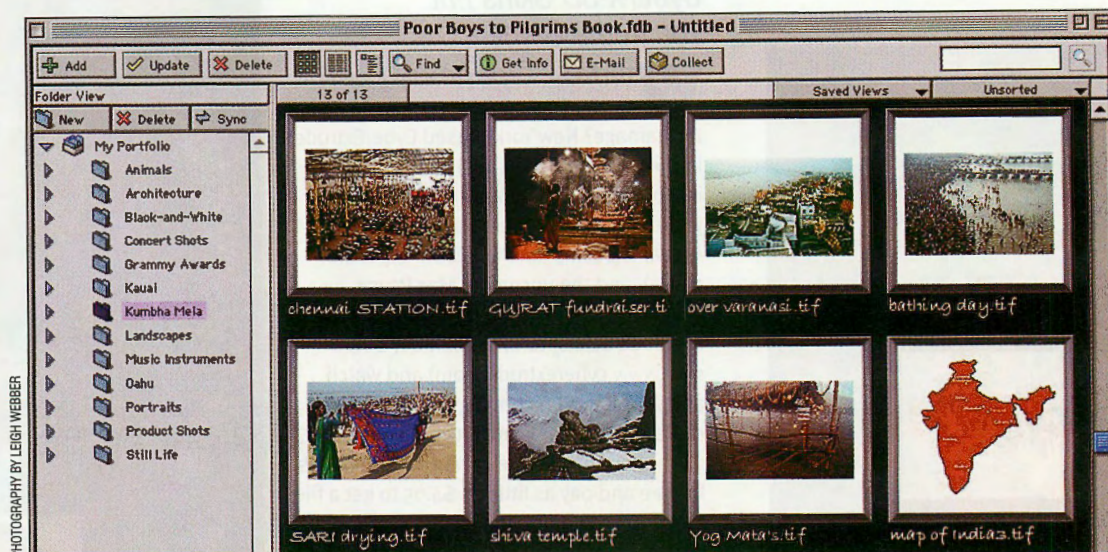
Artist's Statement

Here's what happens in Quake III: Arena when you add 20 bots to a custom dev map where there's only one spawn point above ground. As the bots spawn, they fall and kill the previously spawned bots lying underneath in a massive spawn-die-fall loop.—Diego Knyte

Think you can do better than this? Send your best screenshots to letters@macaddict.com with the subject line "Screenshot of the Month." Tell us your name, the name of the game you were playing, and just what the heck you were trying to do.

how to

Because inquiring minds have the right to be inspired.



Why take criticism for being a pack rat when you can be a supercharged media maven organized enough to make even Martha Stewart jealous?

Manage Your Media

by Kris Fong



Find demos of Cumulus 5.5, Portfolio 6, and MediaPro 1.4 on the Disc.



This stuff's for the pros.



It'll take some effort, but you can do it.



The fundamentals, if you will.

We admit it—our Macs are the center of our universe. Yours may be, too. Even if you don't work in the Mac-centric publishing or graphics industry, you use your Mac to download music, grab photos from digital cameras, download files from the Internet, import footage from DV cameras, email friends, balance your bank accounts, and crank out resumes and letters. All that activity can lead to a mass spawning of files that infiltrate your hard drive weekly—and you, smart cookie that you are, back up that information onto CDs, Zip disks, your iPod, or other storage devices in case your hard drive decides to go south on a permanent vacation.

While hard drives and CDs can store information up the wazoo, how the heck are you supposed to remember where you put that crazy photo of Uncle Bob or that obscure Donny and Marie MP3? Thankfully, programs for digital-media management that work in both OS 9 and X, such as Canto Cumulus (\$99.95, www.canto.com), Extensis Portfolio (\$99.95, www.extensis.com), and iView Multimedia MediaPro (\$90, www.iview-multimedia.com), abound to help organize those of us with only short-term memory. These

Don't Be Lame, Give It a Name!

While some of you willingly succumb to plain laziness, if you're determined to get better organized by cataloging your stuff, we have one very important piece of advice: When offloading your files onto a CD, Zip disk, removable hard drive, or the like, name the media volume *before* scanning it with a cataloging app. If you don't, you'll end up with umpteen generic "Untitled CD" or "Zip 100" volume listings. Congratulations, lazybones—good luck trying to find your prized Pamela Anderson photo in *that* mess!

programs quickly scan mounted volumes and media, cataloging their contents into a database, which you can customize to keep track of where everything is—from TIFFs and QuickTime movies to MP3s and QuarkXPress files—right on your desktop.

If you've got no time to spare but need a quick and easy way to find photos, MP3s, movies, and other digital files on your hard drive and archived media, we show you how to create a simple catalog in each of the three apps. We also demonstrate how to make your own slide show, complete with music, using Cumulus. And if you're an MP3 junkie or a digital photographer, we'll help you build a music-playing library and a professional photo portfolio to suit your purposes.

In This Section

p65 Create a Simple Catalog

Crave order but have no time to spare? Here's how to create a global catalog that will keep your files stashed on your hard drive or stacked on your shelf at your disposal.

p67 Make a Slide Show with Sound

Slide-show screen savers are fun, but if you want to share your pics with others, Cumulus offers a dandy way to create a photographic slide show that you can narrate or set to music.

p68 Create a Music-Playing MP3 Catalog

Just how big is your MP3 collection? Perhaps you're an avid collector, with MP3 CDs littering your entire apartment. Whether your collection's big or small, you can keep track of every song in one catalog, which also doubles as a music player.

p69 Build the Ultimate Photo Portfolio

If you're a serious photographer looking for some serious work, why play eenie-meenie-miney-moe with photo-filled folders when you can catalog your entire photo collection and dig up the perfect samples for potential clients lickety-split?

Create a Simple Catalog

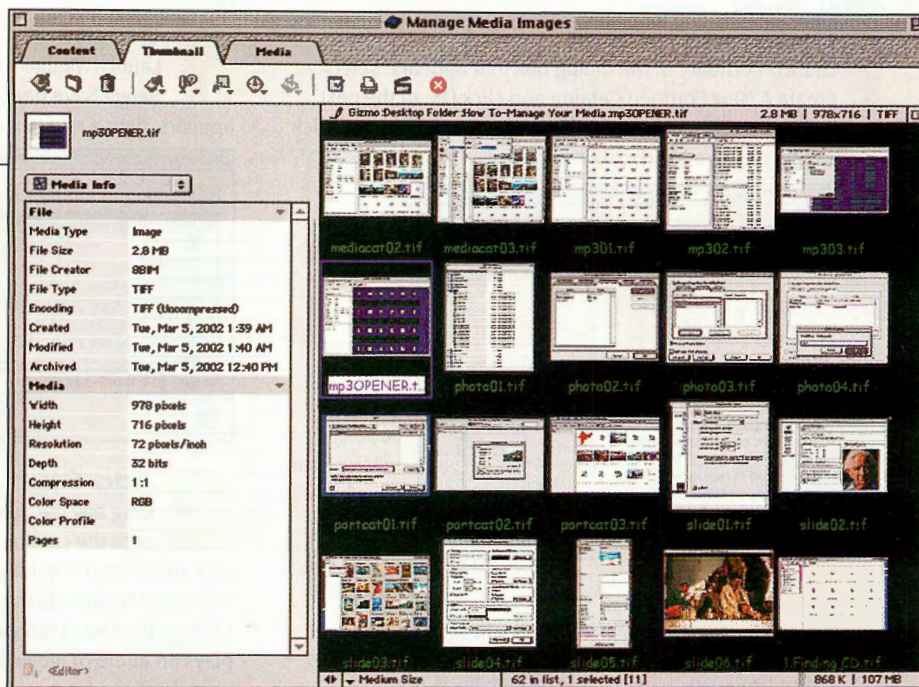
by Leigh Webber and Krls Fong



WHAT YOU NEED

- Cumulus, Portfolio, or MediaPro (demos of all three apps on the Disc)

Don't have a lot of time to spend creating and fine-tuning a supercustomized database? Here's how to create simple, everything-and-the-kitchen-sink catalogs in Cumulus, Portfolio, and MediaPro that will allow you to locate any file—even ones that don't reside on your hard drive.



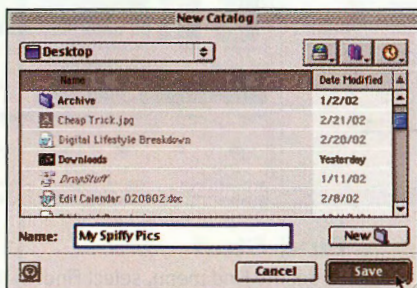
Sherlock can sniff out localized files better than a bloodhound, but a catalog app can find files that don't even live on your Mac.

CUMULUS

1 Create a Catalog

Launch Cumulus. From the File menu, select New Catalog. In the Name field, give your catalog a name that represents what you're going to catalog. Click Save, and Cumulus opens a blank catalog window.

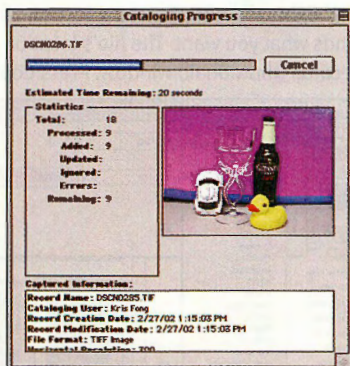
Give your new catalog a name that accurately represents what it is you're cataloging.



2 Add Stuff

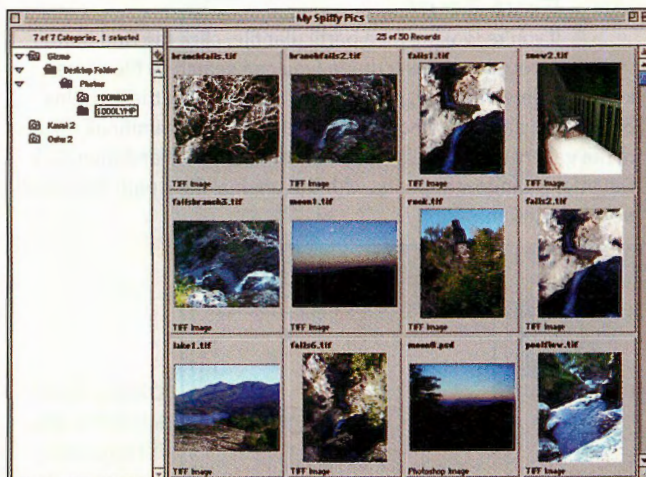
Drag a file, multiple files (hold down the Shift key when selecting them), a folder of files, or an entire CD or Zip-disk volume onto the records panel (the right side of the catalog window, where the thumbnails appear). Cumulus scans the files, builds thumbnail previews, records the file's location, and saves everything.

When adding files to a catalog, Cumulus builds a thumbnail preview and records the file or folder location.



3 Find Stuff

Cumulus lists the volumes (hard drive, CDs, Zip disks, and so forth) and subfolders for what you've added in a hierarchical menu in the categories panel (the left side of the catalog window). To search for a particular file, select Find Records from the Collection menu, enter your search criteria (you can search by record name, dates, categories, file format, and more) in the dialog box that appears, and click Find. Cumulus displays results as thumbnails based on its records. To find out where a particular file resides, click the targeted thumbnail and press Command-I. An info box will reveal the nitty-gritty details for that file.

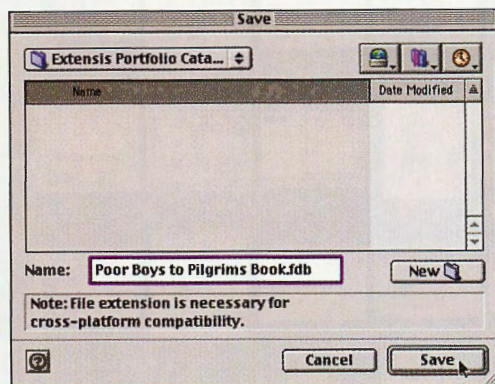


Double-click a category folder to reveal its contents—you can even view thumbnails of stuff that isn't on your hard drive.

PORTFOLIO

1 Create a Catalog

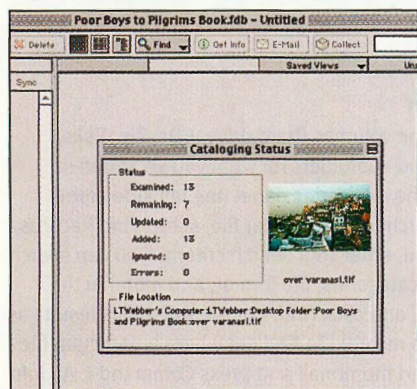
Launch Portfolio. In the dialog box that appears, select Create A New Portfolio Catalog and click OK. In the next dialog box, type a relevant catalog title in the Name field and click Save. Portfolio opens a blank catalog window.



Give your catalog a relevant name that reflects what records it will eventually house.

2 Add Stuff

Drag the files, folders, or volumes you wish to catalog onto the gallery window; a Cataloging Options window appears. This nifty feature allows you to enter descriptions, keywords, and fields for better searching later if you need a

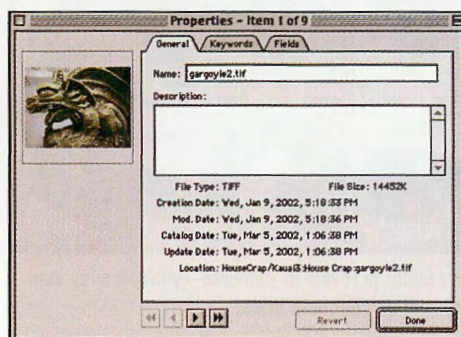


detailed catalog (see "Build the Ultimate Photo Portfolio," p69). For now, click OK, and Portfolio scans records of your files into the catalog.

Portfolio records the files you select, and displays thumbnails of each graphic in the gallery window.

3 Find Stuff

If you're looking for a particular file, click the Find button, enter your search criteria (you can search by file name, keyword, date, file type, description, and more) in the resulting dialog box, and click Find. Portfolio displays the thumbnail results in the gallery window. Click the desired thumbnail and then click Get Info; a window appears, with the original file's path indicated next to Location.

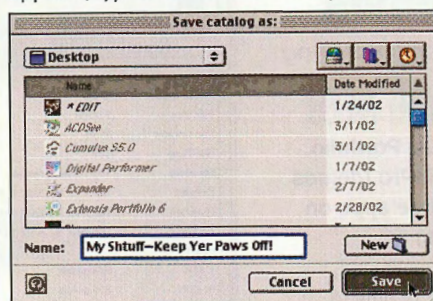


Clicking the Get Info button opens the Properties window, which displays the file's location and other vital info.

MEDIAPRO

1 Create a Catalog

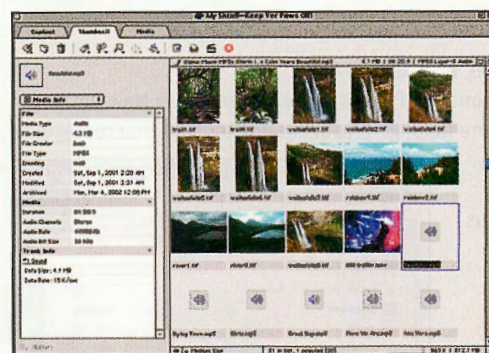
Launch MediaPro to open a blank catalog window. Select Save from the File menu. In the dialog box that appears, type a relevant name for your catalog in the Name field, then click Save.



You can give a generic catalog a "My Files" name, but use a descriptive title for a more specific catalog.

2 Add Stuff

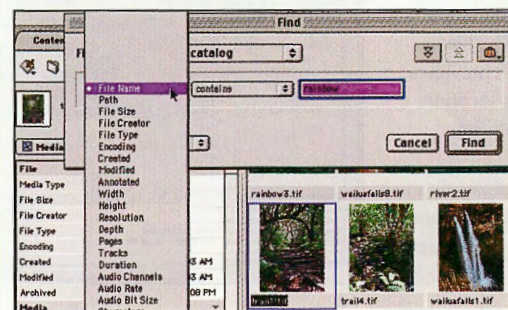
Drag any file, folder, CD, Zip disk, or other volume straight onto the catalog window; Media Pro quickly scans the files and builds thumbnail displays for each one. Click any record or thumbnail to view its info on the left side of the catalog window. Clicking the Media tab gives you a full view of a graphics file, or plays an audio or movie file directly in the app (if it resides on your hard drive or on a mounted volume). Unlike Cumulus or Portfolio, which save catalogs automatically, MediaPro requires that you save your catalog manually (Command-S) before putting it away.



The Thumbnail tab displays a graphical representation of your files, whatever they may be.

3 Find Stuff

Under the Find menu, select Find. In the dialog box that appears, enter your search criteria (you can search by file name, type, creator, date, keywords, resolution, author, and much more), and click Find. MediaPro highlights the first relevant file it finds. If it's not the one you're looking for, press Command-G, which highlights the next matching record, and keep going until MediaPro finds what you want. The file's location appears at the top of the records (thumbnail) window. Press Command-S to save your catalog.



MediaPro allows you to search for files based on a wide range of criteria.

Make a Slide Show with Sound

by Leigh Webber



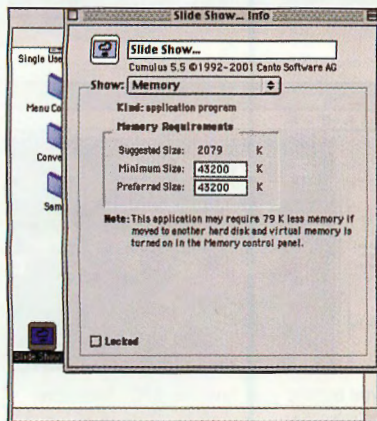
WHAT YOU NEED

- Cumulus 5.5 (demo on the Disc)

We showed you how to create a simple OS X slide-show screen saver in our April issue ("How to Make an OS X Slide-Show Screen Saver," p71), but if you're looking to create a stand-alone slide show that you can share with friends without forcing them to cluster around your Mac's screen, here's how to do it using Cumulus 5.5.

1 Boost Memory

If your individual images are over 5MB in file size, give Cumulus's Slide Show app more memory. In the Cumulus folder, single-click the Slide Show app to highlight it, then open its Info window (Command-I). Select Memory from the Show drop-down menu. In the Minimum Size field, type a number that's three times

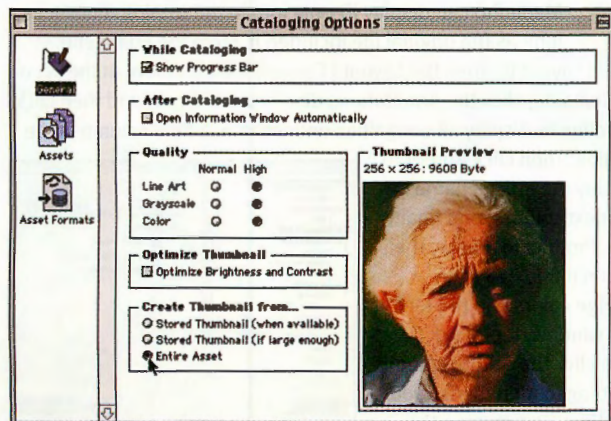


the size of the largest image you'll use in your slide show. For example, if your largest image is 14.4MB, type 43,200K (43.2MB) in the field. Enter the same number in the Preferred Size field and close the window.

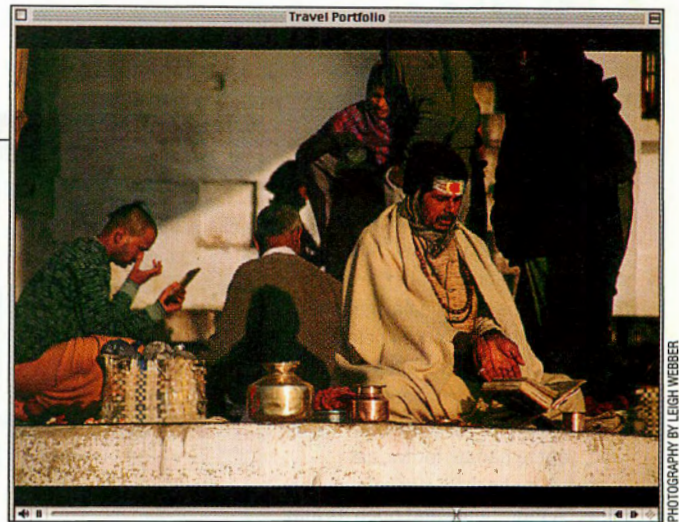
To avoid crashes, ramp up the minimum and preferred memory sizes.

2 Change the Thumbnail Format

If you haven't already created a Cumulus catalog of your images, do so now using the instructions in "Create a Simple Catalog," p65. Once you have one, open the file; from the Catalog menu, select Cataloging Options. To ensure that the slide-show images originate from the original files and not from the catalog's thumbnails, choose Entire Asset in the Create Thumbnail From section, then close the window.



Make sure to select Entire Asset in the Cataloging Options window, or you'll end up with a slide show consisting of thumbnail images.

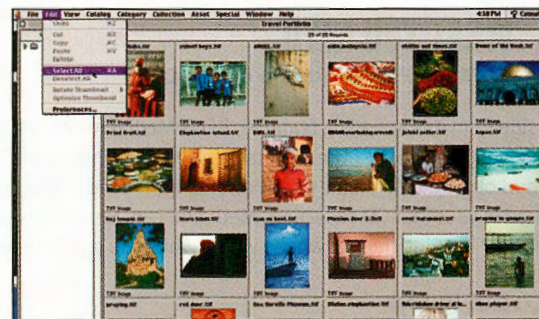


PHOTOGRAPH BY LEIGH WEBBER

Impress friends, colleagues, and potential clients by showcasing your work in an audio slide show.

3 Pick the Pics

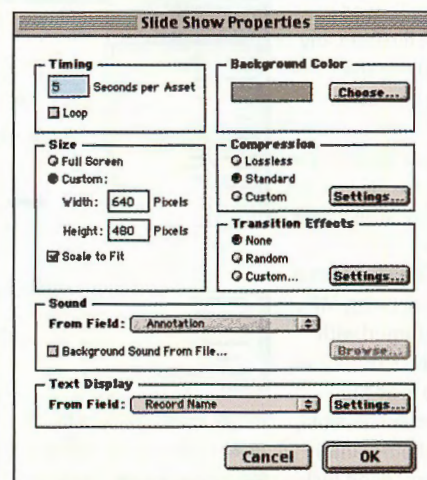
The Slide Show app displays images in sequence from left to right. If you want to dictate their order, rearrange them by dragging and dropping the thumbnails in the records panel. Then choose which pics to use in your slide show by holding down the Command key and clicking individual thumbnails. To toss in the whole lot, choose Select All from the Edit menu (or press Command-A).



Want to showcase everything? Choose Select All to have Cumulus flag the entire catalog for slide-show use.

4 Customize the Show

Once you've made your choices, choose Slide Show from the Collection menu to open the Slide Show Properties window. It features controls for customizing your slide show's attributes, including how long each picture displays onscreen, at

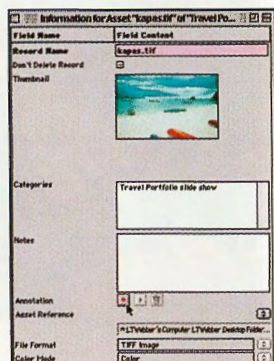


what size photos display, whether to add transitions, what text to display, and how much to compress images. Click the Settings button under each properties category for more options.

Tweak the settings in the Slide Show Properties window to customize the display.

5 Add Audio

Add some ambience to your imagery with sound. Under the Sound property in the Slide Show Properties window, click the Background Sound From File check box. Cumulus opens a navigational dialog box where you can select an AIFF or a WAV file (convert MP3s with iTunes) to play throughout the slide show. Then click OK. Alternatively, if you want to narrate individual pictures, go back to your catalog, select a thumbnail, and open its info box (Command-I). Next to Annotation, click the red circle to start recording, speak into a connected mic, and click Stop to save the recording. Repeat for other pics if you wish. Then open the Slide Show Properties window. In the Sound section, select Annotation from the From Field drop-down menu and click OK.



Annotate individual pics by recording your voice or any other sound directly in Cumulus.

6 On with the Show

Cumulus can take a few seconds to a few minutes to build a slide show, depending on the image sizes and the number of files you committed to the project. When it's done, the slide show opens. To save it, from the File menu select either Save As Movie, which saves the show as a QuickTime movie, or Mail As Movie, which prompts your email app to open and attach the file to a message for sending. Take your pick, and then play your pics to impress future employers and yourself.

Cumulus allows you to save your slide show as a QuickTime movie for all to enjoy at their leisure.



Create a Music-Playing MP3 Catalog

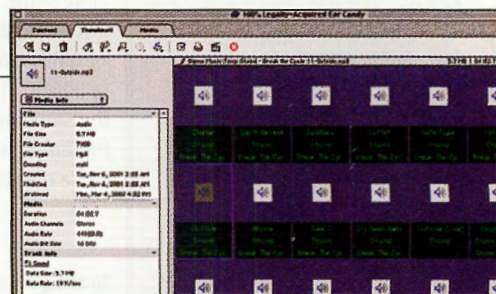
by Kris Fong



WHAT YOU NEED

- MediaPro 1.4 (demo on the Disc)

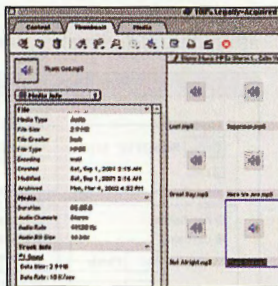
Aside from its cataloging features, iView MediaPro can also play audio and movie files directly from its catalog interface. While Apple's iTunes can handle and play that MP3 load stored on your hard drive, it can't help you find those songs stored in your vast CD collection. MediaPro can. Here's how to create the ultimate MP3 catalog for keeping track of what's where while you jam to tunes on local volumes.



Forgot where you burned your favorite MP3? MediaPro keeps track of what's where and lets you play tunes, too.

1 Load It Up

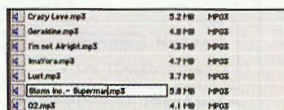
Launch MediaPro to open a blank catalog window, then save the file, giving your catalog an appropriate name. Drag all of your hard drive-based MP3 files into the catalog window. Do the same for all of your MP3 CDs, inserting each disc in your Mac and dragging its icon into the catalog window to scan the songs. You can play any hard drive-based or volume-mounted MP3 file from any view; simply select a file in the catalog and press the spacebar.



It may take a while to scan every MP3 CD and file in it, but you'll only have to do it once.

2 Name That Tune

Unlike pretty pictures, MP3 records get adorned with the same generic audio icon. If you didn't add ID3 tags to your files (annotations that display the artist, album, song title, and other info) when you created them, good luck

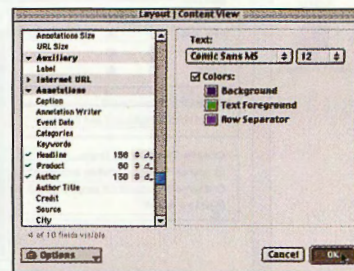


Forgot to add ID3 tags to your tunes? Better name 'em now or forever guess their identity!

telling them apart. If you see a few nondescript file names that lack ID3 tags (skip to step 3 if you're certain you've tagged them), name those tunes. Click the Content tab for a list view. Then click to highlight the generic name and type the correct artist and song.

3 Order, Please

MediaPro can display ID3-tag info in the catalog window as long as the original file included it. From the Edit menu, select Layout to open the Layout | Content View window. In the list on the left side, click the Annotations disclosure triangle, and then click Headline to display all song titles under the Headline column in the catalog. Then click Author to display the artist's name in the next column, and finally click Product to display the album name. (You can change colors and the font in this window, too.) Click OK, then click the Author column heading to alphabetize your catalog by artist, save the catalog (Command-S), and crank up the tunes.



ID3 tags are a saving grace—use the info they contain to build your catalog.

Build the Ultimate Photo Portfolio

by Leigh Webber



WHAT YOU NEED

Extensis Portfolio 6 (demo on the Disc)

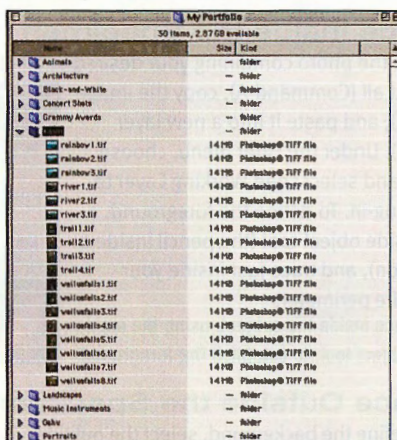
Making catalogs is bonehead easy, but to get the most out of any catalog utility, you need to contribute a little extra blood, sweat, and tears to file organization to ensure accurate search results—especially if you're a photographer. If you own a digital camera, chances are you've got a hard drive and stacks of CDs full of pics, some awesome, and some—well, let's call them space holders.

Regardless of a pic's artistic quotient, when you're scrutinizing similar-looking catalog thumbnails of, say, five similar daisy images with five similar names, you won't find it easy to remember which was best focused. Rather than resort to opening all five photos for comparison, if you tag them with extra info such as descriptions, attributes, or even potential use (stock photo, Web photo, and so on), you'll hit the bull's-eye in your searches. If you've got a slew of shots you'd like to put to use, here's how to create a photographic portfolio using Portfolio.

1 Organize the Images

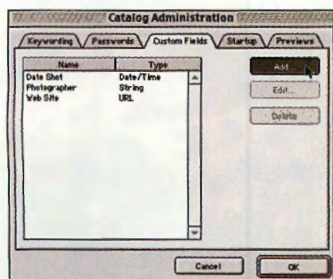
Launch Portfolio. In the dialog box, select Create A New Portfolio Catalog and click OK. Type a name for your portfolio in the Name field, then click Save. Put all your local images in categorical folders (landscape, black and white, still life, portrait, and so on).

Before adding photos to your catalog, sort them into categories so you can batch-tag them with extra information during the scanning process.

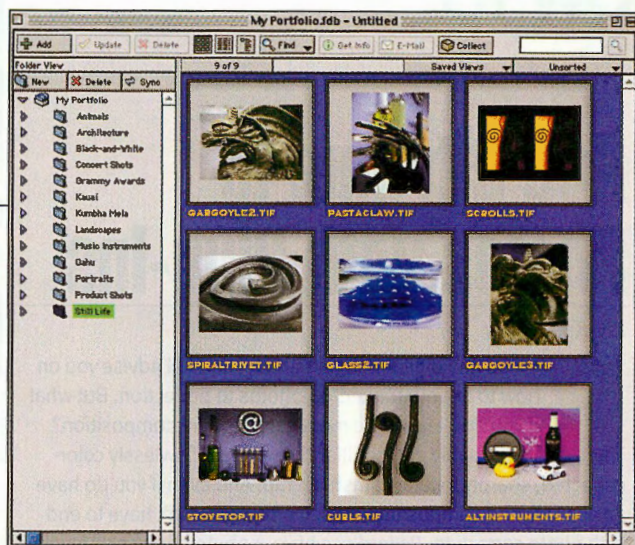


2 Define Fields

Fields allow you to tag a file with additional info, such as a Web site, the photographer's name, or the camera settings used to take a pic. To create custom fields, select Administration from the Catalog menu. Click the Custom Fields tab and then click Add to open the Custom Field Definition dialog box. From the Type drop-down menu, select String. Type Photographer in the Name field and click OK. To add a URL, click Add, select URL from the Type drop-down menu, type Web Site in the Name field, and click OK. Add as many fields as you like, and click OK.



Create custom fields if you want to attach the photographer's name, a relevant URL, and other useful data.

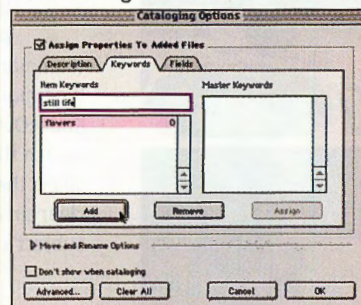


PHOTOGRAPHY BY KRIS FONG

Create an intensely descriptive catalog, and you'll have your entire photographic portfolio at the tips of your fingers.

3 Add Files and Keywords

Drag a folder of pics onto the gallery window; the Cataloging Options window opens. Click the Keywords tab; in the Item Keywords field, type a descriptive word for the batch of files (such as "landscapes"), then click Add. Type as many descriptions that apply to your batched files (for example, you can follow "landscapes" with "Yosemite," "Half Dome," and "stock quality"). Then click Advanced and click the Properties tab in the window that appears. Check the Extract Keywords box and choose Merge underneath it. This allows you to add additional

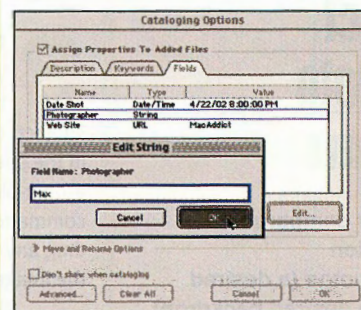


file-specific keywords later on without replacing the originals. Click OK to return to the Cataloging Options window.

For more productive searching, add keywords to a batch of similar pics in the Cataloging Options window.

4 Fill Out the Fields

Click the Fields tab to view the list of fields you just created. Select one, and click Edit to open that field's dialog box. Type the relevant info in the field and click OK. Repeat for other fields. If you have a field such as "Date Shot," but you shot the photo files in your folder batch on different dates, skip that field for now. Click OK to have Portfolio scan the files into the catalog. Repeat for other files and folders. Then add any other keywords or field info relevant to each cataloged image. To do



this, click a thumbnail, and from the Items menu, select Edit Keywords or Edit Field Values and add the relevant information.

Using your own custom fields, type pertinent info in the Fields section. Portfolio adds the data as it scans.

Add Intrigue to Photos with Plug-Ins

by Kris Fong



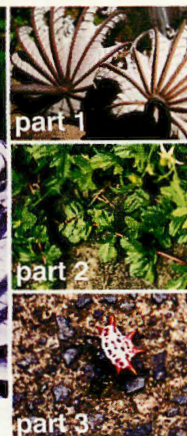
Find Melancholytron 1.02, Mr. Contrast 1.0, GraphicConverter 4.3 and 4.3 PPC, and demos of DreamSuite Series One, Photo/Graphic Edges 5.0, and Xenofex 1.0 on the Disc.

Pick up any digital-imaging article, and it'll advise you on how to fix your funky-up photos to perfection. But what if you don't have the most gifted eye for composition? Then you've probably got a brilliantly exposed, flawlessly color-corrected, sharply focused stash of crap. And even if you do have an eye for good composition, image editing doesn't have to end with photo correction. Regardless of your photography skill level, you can boost your imagery by manipulating pictures with plug-ins.

Plug-ins work within a host program, like Photoshop or GraphicConverter, providing additional tools to enhance images and create whole new compositions. To load a plug-in, you just toss it into the host app's Plug-ins folder. While you'll find plenty of plug-in packages out there, we show you how to use some of the more interesting and useful ones to improve any image's composition. Though we're showcasing only one plug-in per tutorial, many of these packages contain multiple ones. Scope out all the effects in each package for ultimate enjoyment.



We used KnockOut to isolate the big leaves and spider, Mr. Contrast to alter the big leaves' exposure and DreamSuite's PhotoTone to colorize them, and KPT Effects Fluid to stir the background leaves.



ALL PHOTOGRAPHY BY KRIS FONG

Our Plug-in Pack Picks for Pics

- Procreate's KnockOut 2 (\$329, www.procreate.com)
- Alien Skin Software's Xenofex (\$129, www.alienskin.com)
- Procreate's KPT Effects (\$199, www.procreate.com)
- Auto FX's Photo/Graphic Edges 5 (\$199, www.autofx.com)
- Human Software's PhotoSpray (\$99, www.humansoftware.com)
- Flaming Pear's Melancholytron (\$20, www.flamingpear.com)
- Human Software's Squizz (\$129, www.humansoftware.com)
- Flaming Pear's Mr. Contrast (\$20, www.flamingpear.com)
- Auto FX's DreamSuite Series One (\$299, www.autofx.com)



Don't like the background? Toss a subject into a whole new scenario for a more interesting composite.

Place an Object in Another Photo



WHAT YOU NEED

- KnockOut 2
- Photoshop or comparable host application
- Two digital photos (a desired subject and a desired backdrop)

1 Trace Inside the Specimen

Open the photo containing your desired subject in your image editor, select all (Command-A), copy the image (Command-C), and paste it into a new layer (Command-V). Under the Filter menu, choose KnockOut 2, and select Load Working Layer to launch the plug-in. To define the foreground, select the inside object tool (the pencil inside a clear circle icon), and trace just inside your subject's entire perimeter.

Trace inside the subject, using the inside object tool, to establish the foreground.



2 Trace Outside the Specimen

To define the background, select the outside object tool (the pencil outside a clear circle icon), and trace around your subject without touching any part of it. To knock out the subject, select Process from the Edit menu. Use the touchup brush tool to paint in any clipped items, and the touchup eraser to remove garbage.

Once you process the image, use the touchup brush tool to paint in any missing limbs, pieces, or areas.



3 Give the Specimen a New Home

When finished, select Apply from the File menu. Then copy the subject, open your backdrop pic, and paste in the specimen. Move the subject into the proper place, then select your app's scale command, hold down the Shift key, and drag any bounding-box corner to resize the image to fit its surroundings.

Scale the subject to fit its surroundings.





before

Give an image a surge of power by adding electrical effects.



after

Electrify Images for Impact



WHAT YOU NEED

- Xenofex: Lightning
- Photoshop or comparable host application
- A digital photo

1 Select a Specimen

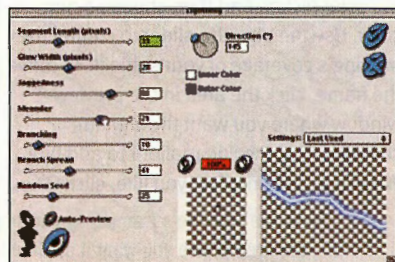
Open the photo in your image editor and pick an element that could use some electrifying (maybe a lightbulb, cloudy sky, or Zeus-like person). Draw a selection around the specimen with an appropriate selection tool, then copy and paste it into a new layer. Then create a blank layer and place it beneath your specimen layer.



Select an object from which you want the lightning to emerge, and copy it into a new layer.

2 Let the Sparks Fly

From the Filters menu, choose Xenofex, and select Lightning to open the control panel. From here, you can change the bolt's color (click on Inner Color or Outer Color to open the color picker), change its direction (drag the blue handle on the Direction wheel), and control its attributes using the various sliders. Tweak away, then click the check-mark icon to cast your bolt.



Tweak these sliders to affect the lightning bolt's appearance.

3 Direct the Strike

By default, the bolt appears randomly in your photo, so use the move tool to start it underneath your targeted specimen (make sure the specimen layer is at the top of the Layers palette). Continue adding new layers, creating random bolts, and placing them until you get the desired effect. For variation, use the eraser to shorten bolts.

Use the move tool to place the bolt so it appears to sprout from your object.



before

Stir up pixels to create interesting arty paintings, like our Dali-esque sunset.



after

ALL PHOTOGRAPHY BY KRIS FONG

Turn Photos into Abstract Art



WHAT YOU NEED

- KPT Effects: Fluid
- Photoshop or comparable host application
- A digital photo

Open your photo in your image editor and from the Filters menu, select KPT Effects and choose KPT Fluid to open the control panel. Use the Velocity slider to control the viscosity of the fluid, Brush Size to control the stroke width, and Blend to control the fluid's pooling characteristics. Then drag the cursor over your photo and watch as the pixels ooze into each other. Go crazy, then click the check-mark icon and admire your new masterpiece.

KPT Fluid animates pixels by swirling, pooling, and oozing them in real time.



before

You may be a square, but your photo doesn't have to be—play up your subject with a custom border.



after

Give an Image Some Edge



WHAT YOU NEED

- Photo/Graphic Edges
- A digital photo

Launch Photo/Graphic Edges. From the File drop-down menu, select Open, navigate to your photo, and click Open. From the Photo/Graphic drop-down menu, select Edges, then Select Preset to open the prefab borders palette. Select one that's close to what you're aiming for and click OK. Then use the sliders to fine-tune the border; use Edge Softness and Feather to make borders wispiest, and select a Roughen effect from the drop-down menu to vary the edge style. Then select Save from the File drop-down menu to preserve your work.

Select a preset, and then fiddle with the sliders to get the look you want.





Decorate a dull image with photo-realistic embellishments.

Spice Up Pics with Photo Embellishments

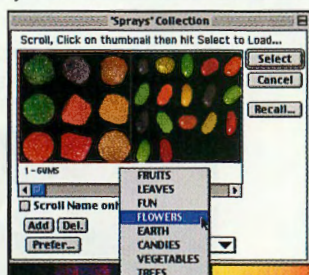


WHAT YOU NEED

- PhotoSpray
- Photoshop or comparable host application
- A digital photo

1 Pick a Spray

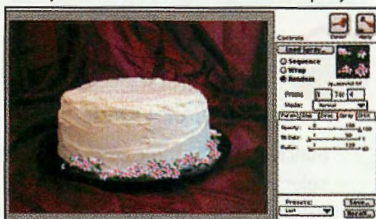
Open the photo in your image editor. From the Filters menu, select Human Software, then PhotoSpray to open the window. Click on Load Spray to open the Sprays Collection window. Choose a type of embellishment from the Categories drop-down menu, and then scroll through the thumbnails to view the choices. Click one you like and click Select.



PhotoSpray comes with plenty of photo-realistic sprays. Choose one that complements your subject.

2 Spray Away

To add the embellishments, drag the spray-can cursor over the areas you want to cover; the window provides a live preview of your work. Click the Param (parameters) tab to change the spacing and size of embellishments. The Step, Direc (direction), Spray, and Orbit tabs let you control the pattern and direction of the spray. Add variety by loading different sprays. When satisfied, click Apply.



Click the Spray tab to deliver a more random placement of photo bits.

3 Even Out the Exposure

Depending on your photo, you may need to do some touch-up work to make the sprayed-on bits look like they're really part of the subject. Use the burn tool or 10-percent opacity black paintbrush to darken areas in shadow, and use the dodge tool or 10-percent white paintbrush to lighten dark areas or reintroduce highlights.



This leaf lay partially in the plate's shadow—we used the burn tool to darken the shadowed half.



Give photos a more subdued look with Melancholytron.

Change the Mood of Any Image



WHAT YOU NEED

- Melancholytron
- Photoshop or comparable host application
- A digital photo

1 Wash Out Colors

Find an image whose mood or color composition you want to transform and open it in your image editor. Under Filters, select Flaming Pear and then Melancholytron to open the control panel. The default tone is sepia; if you want to change it, click the Sepia color swatch to launch the color picker, and then choose a new color. Otherwise, check the Uniform Sepia box and move the Sepia slider up to 100 to turn your pic into a sepia duotone.



We gave our 1980s-era image a 1900s-era makeover by changing colors to a sepia tone.

2 Adjust the Vignette

Black is the default color of the vignette, an opaque border that frames and fades into an image. If you want to change this, click the Vignette color swatch to open the color picker, and then choose a new color. Use the Vignette slider to control the framing's coverage of your subject. To move the frame, click the area in the preview window where you want the vignette centered. Use the Focus slider to add blur. When you see an effect you like, click OK.



Move the vignette's framing by clicking the area where you want it centered.

3 Finish Up with Some Tinting

You can save your image as is, or add more interest with a little digital hand-tinting. In your image editor, choose foreground colors that complement the subject, select the paintbrush tool, set Opacity to 10 percent, and lightly paint over areas that emphasize the subject's details.



For added interest, digitally hand-tint a duotone image.



If you're looking to grab some attention, use a photo-morphing plug-in to warp your ideas.

Distort Photos to Create Optical Illusions



WHAT YOU NEED

- Squizz
- Photoshop or comparable host application
- Two digital photos

1 Isolate Your Subject

In your image editor, open the photo you wish to distort, separate the subject from its original backdrop (see "Place an Object in Another Photo," p70, for instruction), place it on a clean white background, and save the image. From the Filter menu, select Human Software and then Squizz to open the design panel. In the Brush Control section, select a midsize brush from the Size drop-down menu.



For best results, choose a medium-size brush to start.

2 Warp Speed Ahead

Click the Squizz button in the Brush Control panel, and use the brush to mold your photo into shape. If you make a mistake, click Undo and paint the original photo back in as needed. If you're adding the distorted image to another that imposes limitations (for example, you're squeezing a cat into a milk bottle), click Load, navigate to your secondary image, click Open, and set Opacity to 50 to view both images. Then mold the object to fit the second image.

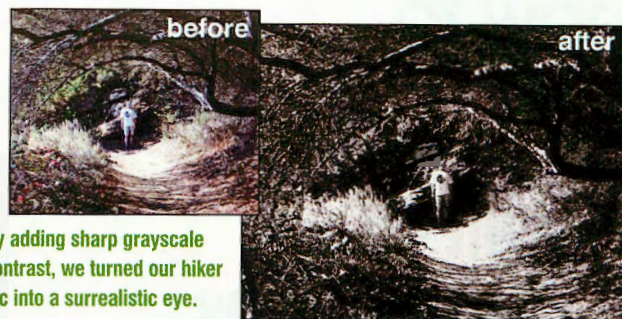
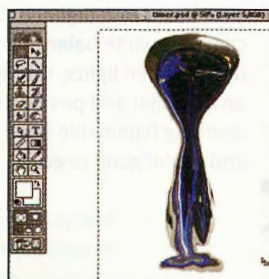


Overlay the second image on top of your distorted pic to view your boundaries.

3 Cast the Illusion

Once you've got a result that makes you happy, click Apply to render the image. To add the distortion to the second image, select the object, copy it, open your second photo, and paste in the distortion. Using the magic wand tool, click the distorted image's backdrop and press the Delete key. Then move the image into the proper place.

A Squizzified object looks rather odd on its own, but makes sense in a backdrop.



By adding sharp grayscale contrast, we turned our hiker pic into a surrealistic eye.

ALL PHOTOGRAPHY BY KRIS FONG

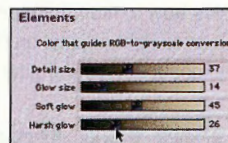
Emphasize Compositional Lines



WHAT YOU NEED

- Mr. Contrast
- Photoshop or comparable host application
- A digital photo

Find a photo whose architectural elements you'd like to play up and open it in your image editor. Under the Filters menu, select Flaming Pear and then Mr. Contrast to open the control panel. Use the Elements sliders to control exposure, the Colors sliders to manipulate the original colors or create a duotone, the Mix sliders to control the blend of the original pic with the effect, and the Curves sliders to control contrast and gradation. When satisfied, click OK and admire.



Bring down the Harsh Glow slider to create a darker, moodier image.

Digital cameras aren't great at capturing a narrow depth of field. Fake the look with a focus filter.



Fake a Narrow Depth of Field

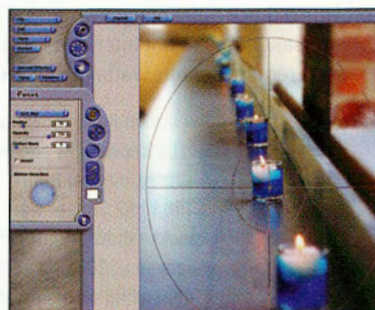


WHAT YOU NEED

- DreamSuite: Focus
- Photoshop or comparable host application
- A digital photo

This effect puts the focus on a subject and blurs its surroundings in perspective. Open the photo in your image editor. Under the Filters menu, select Auto FX Software, and then DreamSuite. From the Special Effects drop-down menu, select DreamSuite 1, then Focus. Select Soft Blur from the drop-down menu and drag the target onto the subject. Use the Radius slider to adjust for the subject's size. Then click OK.

Drag the target to establish the focal point.



Light Up Your Pictures

by Leigh Webber

If you want to be the master of your own digital-still and moving-picture universe, heed these mighty words—let there be light! Without it, neither photography nor videography would exist. While the average amateur may do a pretty good job of capturing light and its reflections in a photo or video, only a true master knows how to control and manipulate light to flatter the subject and produce a well-lit shot.

Here, we give you the lowdown on the types of lights and accessories you need to illuminate any subject and produce better-looking stills or DV footage. We also show you how to illuminate people with top-notch lights, and how to light objects on the cheap to capture the best exposure on your digital camera or DV camcorder.



PHOTOGRAPH BY LEIGH WEBBER

You can transform the mood portrayed in your stills and video, depending on how you manipulate lighting.

Get the Goods

When you rely on available light (the sun, room lighting, flash, and so forth) to shoot your scenes, you're pretty much at the mercy of your environment. All you can do is use your digital or DV camera's controls to compensate, or pray that your device has stellar auto capabilities. Give your camera and yourself a break! With the right light and accessories, you can produce better-quality stills and video, free of digital noise, unbalanced exposures, and camera shake. Here are some of the most important items every photographer and videographer should have in a lighting toolbox, and how to use them.

The Right Light

The two most common types of professional lighting are *strobe* and *tungsten*. These lights are also commonly expensive. However, light can come from a variety of sources, ranging from attachable flashes and video lights to halogen lights, desktop lamps, flashlights, and the sun (see "Lights for Less," p75). If you're serious about your digital work, here's the beef on strobe and tungsten lighting.

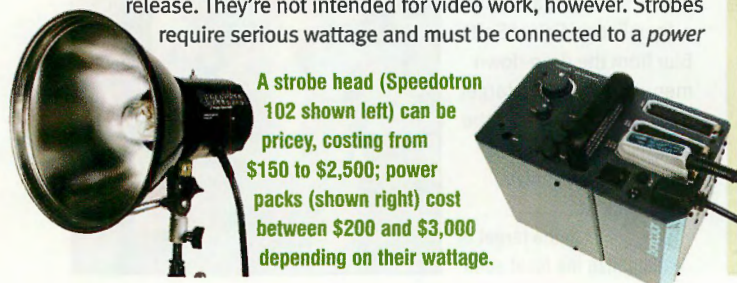
Strobe lighting is the top choice for photographers. Similar in nature to a camera's built-in flash but more powerful, strobes provide a quick burst of light when you press a camera's shutter release. They're not intended for video work, however. Strobes require serious wattage and must be connected to a power

pack, a capacitor that generates watt-seconds for use. Power packs can range from 500 up to 6,400 watt-seconds; typically, the higher the watt-second, the more powerful the light intensity.

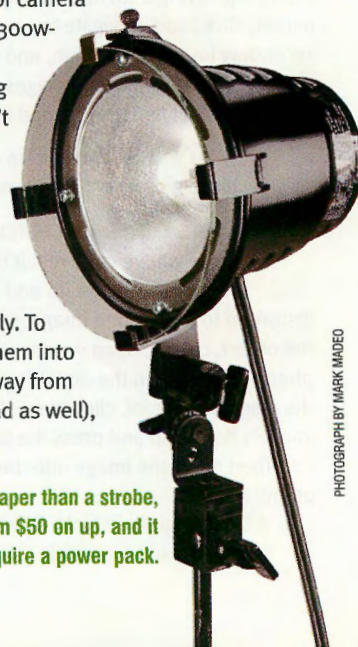
Start with a 1,600 watt-second power pack for the most flexibility. You can plug multiple strobes into one pack and split up the power, or attach one strobe and control the light for maximum output. Attach a flash cord between your camera and the power pack to sync the strobe to your camera. When you trigger the camera to open the shutter, a signal goes to the strobe and it pops the flash.

Tungsten lights (aka *hot lights*) provide continuous illumination, and are similar in nature to household lightbulbs. They're the first choice for videographers, but also work well for photography. These lights don't require a power pack or camera connection, and commonly use a 300w-to-1,000w bulb.

Tungsten lights get hot, making them potential hazards if you don't set them up carefully. However, they're less expensive and easier to set up than strobe lighting. Because these lights tend to cast an orange or yellow glow, you should set your digital or DV camera's white balance accordingly. To use tungsten lights, simply plug them into an AC outlet and position them away from anything flammable (look overhead as well), and you're good to go.



A strobe head (Speedotron 102 shown left) can be pricey, costing from \$150 to \$2,500; power packs (shown right) cost between \$200 and \$3,000 depending on their wattage.



PHOTOGRAPH BY MARK MADEO

A tungsten light is cheaper than a strobe, ranging anywhere from \$50 on up, and it doesn't require a power pack.

Admirable Accoutrements

Lighting accessories are just as important as lights in that they enable you to control light. Though a slew of accessories is available for use with both strobe and tungsten lighting, here's a breakdown of some of the most common types.

Softboxes, Scrims, and Umbrellas

These attachments lessen a light's intensity, preventing hot spots and providing an even blanket of illumination with a softer gradation between shadow and highlight. Scrims and softboxes typically diffuse light via a frosted Mylar or translucent fabric; you attach them directly to lights so the fabric covers and diffuses the light passing through. An umbrella typically features a white, silver, or gold fabric on its underside. You face the light away from your subject and attach an umbrella to its front so that the light reflects onto the subject. All three options generally produce the same effect for photographers and videographers.



Stands

If you have lights, you've got to have stands to support and position them, just as a tripod supports and positions a camera. The heavier and sturdier the stand, the less likely it is that your expensive strobe will take a nosedive (and give you a heart attack in the process). Or use the pro's trick—anchor your stand with a sandbag so the light's weight or angle won't tip it over.

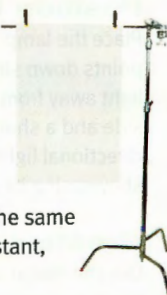
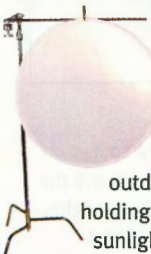
Barn Doors

These metal doors attach to lights to prevent illumination from spilling out in every direction. Barn doors allow you to direct a light beam. Move the doors closer together to create a narrow spotlight; open them up to create a full floodlight. Use them to light areas of a scene selectively.



Disc Reflectors and Fill Cards

These come in ultrahandy if the lighting is uneven or you're shooting pictures or video outdoors. Disc reflectors are usually composed of white, silver, or gold bendable fabric; a fill card consists of a sheet of white foam board in any size. Both bounce light from a source (natural or artificial) into shadowed areas of a scene. Disc reflectors work well in outdoor model shoots, with an assistant holding the disc and angling it to bounce sunlight onto a model's face. Fill cards work better when you're not dealing with outdoor elements (you can catch some air holding a 6-by-8-foot card on a windy day); otherwise, they work in the same manner as disc reflectors. If you don't have an assistant, clamp the reflector or fill card to a stand.



Light Meter

The photographer's best friend, a handheld light meter measures the amount of light reflected from various subjects in different areas of a scene, allowing you to adjust the camera's aperture and shutter

speed accordingly for the best exposure. Most digital cameras feature a built-in light meter. You'll get the best exposures from cameras that employ multisegmented metering—the camera measures light from multiple areas in a scene and does a little algorithmic magic to produce a good exposure.

Flag

This term refers to a black, heavy card or other material that blocks light. Tape flags to windows in the path of direct sun rays to prevent hot spots from developing in a sunlit scene. They can also eliminate light-source bounce-back from highly reflective surfaces when you use them to surround objects outside camera view.



External Flashes and Video Lights

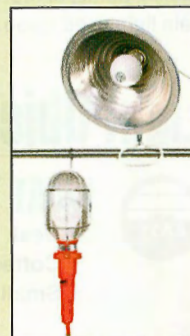
Most digital cameras come with a built-in flash, but if it's not strong enough to light your scene, get an external one (if your camera has a hot shoe). With an external flash, you can direct the light blast elsewhere. Bounce it off a ceiling to get a pseudo fill-card benefit. Or use it as a fill light with your lighting setup; just handhold the flash and direct it toward dark areas.

DV cameras typically don't come with built-in lights, but most have a hot shoe for attaching an external video light. These types of lights won't illuminate an entire scene evenly, but they're great for shooting interviews and conversations in dimly lit situations.

Lights for Less

If you're on a budget or not ready to invest in a full lighting system, you have options. Common household lights can do a terrific job of shedding light on a dim situation. You can use desk lamps, flashlights, holiday lights, and workshop halogen lights in place of tungsten lighting. Use light-colored fabric or white butcher paper to diffuse light, and tinfoil to reflect it.

Sunlight is free, so set up scenes near large windows to take advantage of natural light. If you're shooting outside, overcast days provide soft, even lighting, whereas sunny days create hard, directional light. Always shoot with the sun behind you to avoid silhouetting, unless that's the effect you want, and use fill cards (you can buy a 30-by-40-inch piece of white foam board for less than \$5 at any crafts store).



Don't have the cash? You can use these types of lights in your projects, too.



PHOTOGRAPH BY LEIGH WEBBER

Light-colored gauze can diffuse harsh sun rays, giving you more even lighting for your scene.

Light People



WHAT YOU NEED

- Two to three lights (any type)
- Fill cards (optional)
- A willing subject

To create the most striking portraits for photos and video interviews, you need a key light, a fill light, and a background light. You can use three lights, or two lights and a fill card. To prevent ugly shadows, use a softbox (or something comparable) to diffuse light. Here's how we lit our subject using strobe lighting.

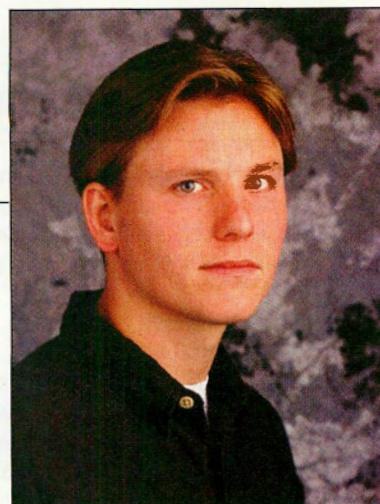


This typical portrait setup shows a softbox-enclosed key light (right) and fill light (left), with a background light behind and to the right of the stool.

Place the Key Light

This is the main light, which you should position first. Place it right of your subject and raise it slightly higher than his or her head. Point it downward so the light falls between your subject's chin and eyes. If you're shooting video, make sure the light is in an area free from walking traffic, or moving shadows may plague your footage. (Our main light used 1,000 watt-seconds.)

Good lighting technique is having total control of light and shadow.



PHOTOGRAPH BY LEIGH WEBBER

Set the Fill

The fill light lessens the contrast between shadow and highlight on the face's two sides; its wattage shouldn't exceed your key light's. Place the fill light left of your subject, raise it above his or her head, and point it down in the same area as your key light. If using a fill card, place it left of your subject and angle it so it bounces light from the key light onto your subject's right side. Keep the light intensity on either side of the face asymmetrical and don't let the watt ratio of the key and fill lights go beyond 4:1. (We had a 2:1 ratio—our fill light used 500 watt-seconds.)

Light the Background

The background light is generally the lowest-powered one of the bunch. Set the light on a short stand behind your subject and point it upward to illuminate the background. Also consider placing a colored gel on this light to make your subject stand out. Now you're ready to shoot. (Our background light used 300 watt-seconds.)

Light Objects



WHAT YOU NEED

- Desk lamp with a swiveling head
- Coffee cup
- Small mirror

In product photography, it's important that you light a product sufficiently on all sides so a potential buyer can comprehend it completely. Drop shadows also lend a nice artistic effect and can add appeal. Pros use techniques similar to those we've outlined for portraits when they're lighting objects. But if you don't have the equipment, here's how to light a coffee cup effectively using a low-tech solution—a desk lamp.

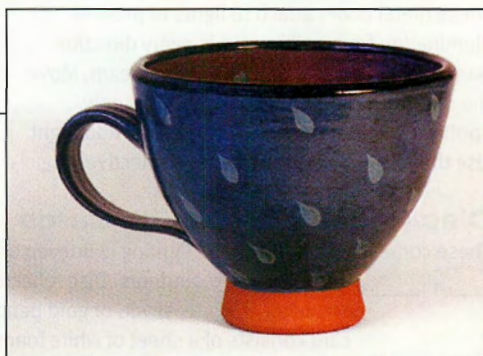


No expensive studio lights here, folks—just a desk lamp and a mirror, but the same techniques apply.

Place the Object

Place the cup in a flattering position and against a background that shows off its main features. We placed our cup on a white background to accentuate its rich colors and hand painting.

You might be inclined to think we shot this with studio lights... see below left for the truth!



PHOTOGRAPH BY LEIGH WEBBER

Position the Light

Place the lamp to the right of the cup, and aim the light so it points down slightly but shines just above the rim. Then move the light away from the cup until the light falls across the entire right side and a shadow drops across the back left side. This hard, directional lighting creates two highlights on the cup's rim, showcasing its glossy finish.

Create a Fill Light

Use the mirror to bounce light from the lamp onto the left side of the cup. Because of its highly reflective surface, the mirror can bounce back almost the same amount of light that the lamp puts out. Place it on the left side of the cup and angle it so the cup is evenly lit. Then shoot away!

Photographer Leigh Webber asserts, "Mannequins are the perfect models—they smile even when the flash is right in their eyes."

Cool. What is it?



PowerMate

USB Multimedia Controller & Input Device

PowerMate is the coolest volume knob your Mac has ever seen – and so much more. Use it to edit iMovies, scroll through long documents and web pages. Best of all, PowerMate is an assignable controller. Program it to do anything you want in any application. At just \$45, it's worth its weight in aluminum. PowerMate – take it for a spin.



JUST
\$35⁰⁰

iMic

USB Audio Interface

- Adds stereo audio input to your Mac
- Plug-and-Play, no software required
- Portable, no installation or power needed
- Supports MP3, QuickTime and AIFF files



JUST
\$39⁰⁰

USB Audio Hub

4-Port USB Hub for Audio

- Optimized for USB-based audio recording
- Works both powered and unpowered
- External power supply included
- Functions as standard USB 4-port hub



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ask us

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Questions?

Submit technical questions or helpful tips directly via email (askus@macaddict.com) or c/o **MacAddict**, 150 North Hill Dr., Brisbane, CA 94005.

Q Since Mac OS X is Unix-based, how can I boot to a command line at startup to run Unix disk-repair utilities?

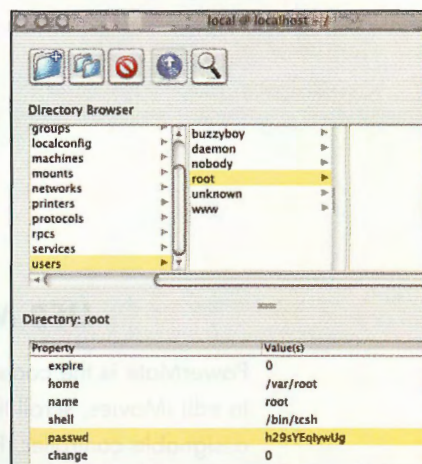
A The problem with a completely new operating system is that you have to relearn all the tricks for fixing problems. If something goes wrong at startup and all you see is the spinning beach ball or the happy Mac face, what can you do? You can boot into Mac OS 9 and run any utilities you may have, boot to a CD and do the same, or try your first line of offense by booting directly to the command line in single-user mode. Hold down Command-S at startup to boot

directly to the command line. At this point you can run the built-in Unix disk-repair utility, fsck (file system check). At the localhost# prompt, type `/sbin/fsck -y`. This utility will check your file system, just as Disk First Aid does in Mac OS 9. When it is done, simply type **Reboot**. Your disk is now checked and repaired.

Q What can I do if I forget my root password for Mac OS X?

A If you forget your root password, you can reset it easily, as long as you know an administrator password. Your computer's root password is the ultimate key to making changes to the entire system, however; an admin password works only at the user level and restricts you from making many system-level changes. Open the NetInfo Manager application, which resides in your Utilities folder. Click the little lock at the bottom of the window and enter your admin password. In the top-left list of items in the NetInfo

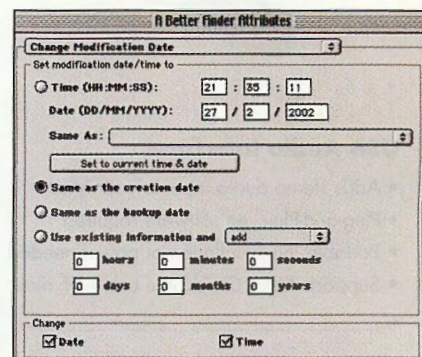
window, find the Users item and highlight it to see a list of your computer's users—including the root. Highlighting a given user will bring up its properties and values in the area below. Here you'll find the password information (in encrypted format). Select and copy a known password value (like your personal password), and paste it into the password field for the root user. Quit and save your changes. Your newly assigned root password should now work.



Head to NetInfo Manager if your root password was just too radical to remember.

Q How can I batch-modify a file's modification date?

A If you want to change the finder data for lots of files, one utility does it all: A Better Finder Attributes (\$9.95, www.publicspace.net/ABetterFinderAttributes) lets you modify many files at once via a handy contextual menu.



A Better Finder Attributes (yes, that's the name) lets you make bulk changes to Finder info.

The Guitar Slinger

Q I'm a guitar player. What Mac programs are out there for me?

A Indeed, your Mac—amazingly enough—can even help you play the guitar. Below is a list of software that we like, including where to find it, where it runs, and what it does.



Roni Music's Amazing Slow Downer even lets you slow down Van Halen's Eruption while maintaining the same pitch so you can learn every note.

PRODUCT	PRICE, AND URL	WHERE IT RUNS	WHAT IT DOES
Rustle Laidman's Guitar Tuner 4.0	\$15, http://members.aol.com/raymeow	Mac OS 9	Tunes your guitar
DRS Digital's ChordBook	\$15, www.drsdigital.com	Mac OS 8 to Mac OS X	Interactive chord guide
Greg Clayton's GuitarTab	\$24, http://homepage.mac.com/gregclayton	Mac OS 8 to Mac OS X	Guitar tablature program
Roni Music's Amazing Slow Downer	\$39, www.ronimusic.com	Mac OS 8 to Mac OS X	Slows down music for learning

Q Can I turn my monitor on its side to view the entire length of a document?

A While you can buy a monitor that swivels 90 degrees to portrait view, this is only useful if your Mac can rotate the menu bar so it's still at the top of your screen. Portrait Displays' Pivot Mac Software 6.25 (\$49.95, www.portrait.com) lets you rotate your desktop 90 degrees to a portrait-style view in System 7.1-Mac OS 9.x. While Portrait doesn't offer a Mac demo, you can get the Pivot 6 Mac upgrade from the downloads area on Portrait Displays' Web site and try out a full copy of version 6.2.5 for 30 days.



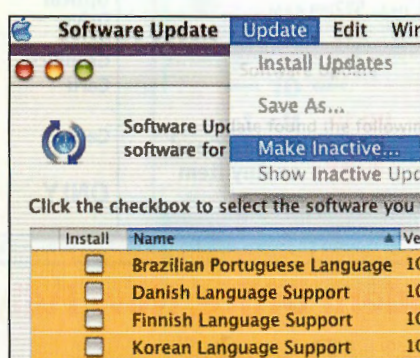
Whoa, vertigo! It's your monitor in portrait mode.

Q I have installed Mac OS X and Mac OS 9 on the same drive. Why can't I hold down the Option key to choose my system at startup?

A When you install Mac OS 9 and Mac OS X on different partitions or drives (volumes), you can hold down the Option key at startup to choose which operating system you want. When you install Mac OS 9 and Mac OS X on the same volume, however, the Option key only lets you boot up whatever system you last ran. One workaround is to hold down the X key during startup. This forces your computer to boot into Mac OS X. Unfortunately, there is no equivalent for force-booting into Mac OS 9. Your best bet in that case is the Startup Disk control panel in Mac OS 9 and the Startup Disk system preference in Mac OS X.

Q How can I tell Mac OS X that I don't ever want to install Japanese Print Drivers from the software update?

A Mac OS X's software-update mechanism is a great tool, but it can be a little too persistent. There may be items you don't want now and never will want, such as support for a language you never use. You can deactivate these updates. Open the Software Update system preference, highlight the unwanted items in the Software Update list, and then choose Make Inactive from the Update menu. Those items will no longer show up in the update list.



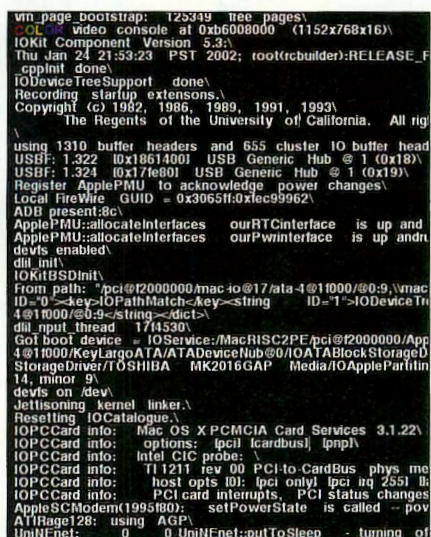
We're finished with Finnish.

Q The Mac Genius at my local Apple Store showed me how to bring up the startup-text screen in Mac OS X, but I can't remember how he did it. Can you remind me?

A This cool little Mac OS X trick will convince your friends that you really are a computer geek. Hold down Command-V at startup to see a complete list of all the system activity (such as loading drivers and mounting drives) that happens before the graphical layer loads. Row after row of techno text scrolls down the screen, and when it is done OS X goes right to the standard log-in screen.

If you want to do this at every startup without holding down those keys, launch your Terminal application (from the Utilities folder within the Applications folder), and log in as the superuser. The superuser is the root user and requires a root password to be created in the NetInfo Manager application. Enter the following command:
`nvrn boot-args="-v"`
 Press Return to boot into

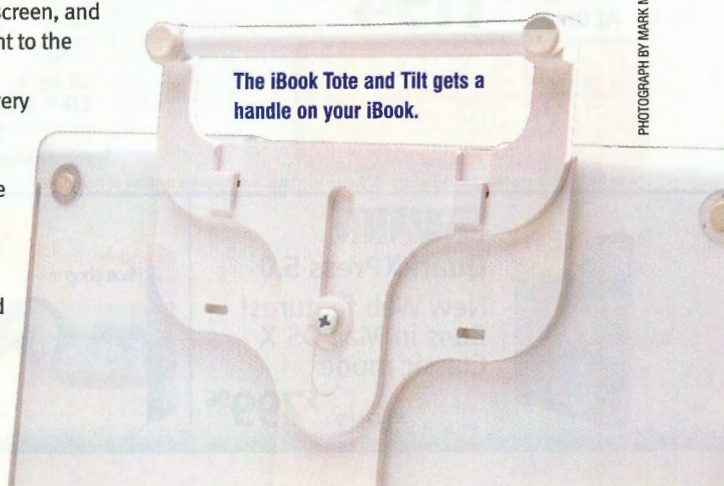
this verbosely impressive mode every time—well, almost every time. If you boot into Mac OS 9, you'll delete this setting, and you'll have to reset it the next time you boot in Mac OS X.



The hidden mumbo-jumbo of the Mac OS X startup process looks something like this. (Note that we simulated this image for demo purposes.)

Q Can I put a handle on my new iBook?

A Call the original iBook what you want (toilet seat and clamshell are our favorite names), but anyone who's actually used one knows that its greatest innovation was the built-in handle. Although Apple dropped this handy feature from the revamped iBook introduced last year, you can add a handle to the 12-inch iBook with Cyber3's iBook Tote and Tilt (\$29, www.cyber3.com). It installs in minutes and doesn't even void your warranty. Cyber3 also sells the TiBook Tote and Tilt (\$44.95) for the PowerBook G4.



The iBook Tote and Tilt gets a handle on your iBook.

PHOTOGRAPH BY MARK MADEO



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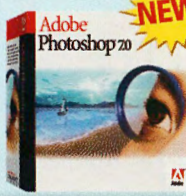
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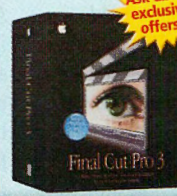
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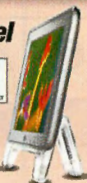


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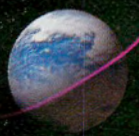
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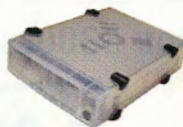
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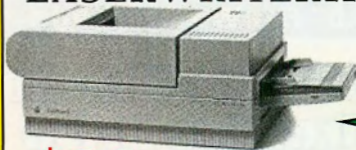
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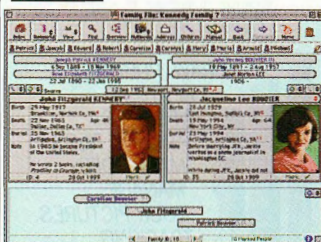


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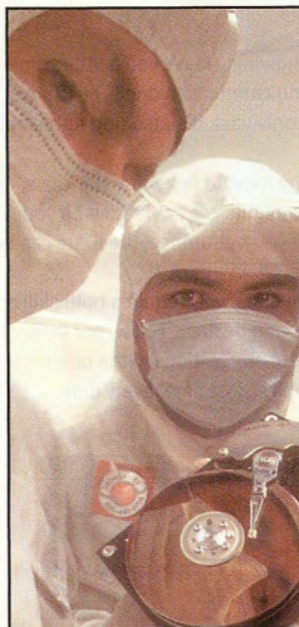
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How to Score With Your iPod



WHAT YOU NEED

- iPod
- iDate antenna
- iDate Pro software

You're busy. You can't afford to waste time—or money—on dates that go nowhere. The solution? Just plug an iDate antenna into your iPod's headphone jack, load the bundled iDate Pro software, point the antenna at a candidate hunk or honey, then use one of iDate Pro's six modules to sleuth out the truth about your target.

BS Detector He says he's a stockbroker but you sense he might be just a stock boy—and after your third Pan-Galactic Gargle Blaster, you're beginning to doubt your intuition. Worry not, the iDate is always stone-cold sober.

IQ Analyzer Before you walk up to her and waste your best opening line, point the iDate's supersensitive antenna at that cutie and find out if she could outwit Stephen Hawking, is as dumb as a bucket of sand, or is juuuuuust right.

Wealth Sensor Don't let her Giuseppe Zanotti belted midcalf boots or his Hugo Boss three-button blazer fool you—everything else in the closet might be from Costco. The iDate will tell you who's got green and who's just a poseur.

Size-o-Meter Sure, we know size doesn't matter, but if you're curious whether he's an Oompa Loompa or is related to Secretariat, or whether she's the Kalahari masquerading as the Himalayas, the iDate will imperceptibly probe for the truth.

STD Alarm Not that anyone would ever knowingly leave you a little something to remember them by...but one can't be too careful, can one? The iDate's database of unwanted after effects is not only vast, it's also updatable online.

Gaydar Gals, are you an Ellen De G. looking for your first Anne H.? Guys, does she look like Kournikova but you think she might be a Navratilova? If your personal gaydar is so weak that Rosie took you by surprise, the iDate can help.

The iDate is a powerful tool, but using it effectively requires both skill and an understanding of your individual needs and desires. Follow our three-step guide for using the IQ Analyzer and apply our suggestions to the other five modules, and you'll soon be cuddling happily—first time, every time.

1 Set the IQ Range

Use the iPod's scroll wheel to select IQ Analyzer, then press the central selection button. In the display that appears, use the scroll wheel to set a minimum and maximum acceptable IQ. Be realistic: If your musical taste runs to Christina Aguilera, for example, we don't recommend a maximum IQ setting over 100.

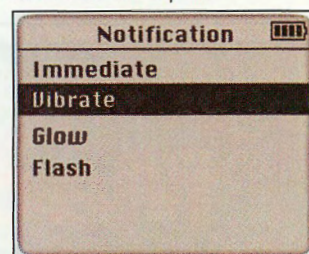


Setting the appropriate IQ range requires both humility and self awareness.



2 Set Notification Mode

Tap the iPod's forward button, and the Notification display appears. Select Immediate and tap the selection button for info about the person at whom you're aiming the antenna. (Warning: Aiming it at yourself can dangerously deflate your ego.) Choosing Vibrate, Glow, or Flash will cause the antenna to wiggle, gently glow, or flash brightly whenever a subject who fits into your IQ range comes within 20 feet. Use the Flash setting with care: You don't want to appear too eager.



Advanced Tip: Set IQ Range to above 125 and Notification to Vibrate. Then attend a literary lecture and enjoy a gentle massage all evening.

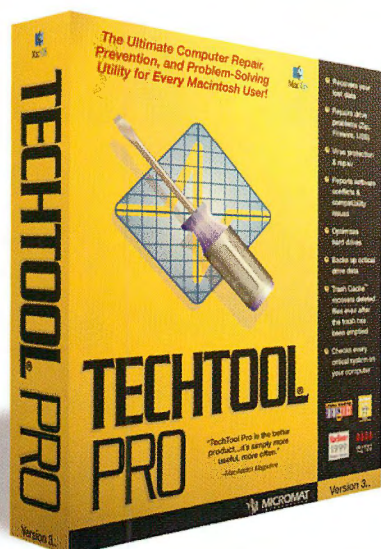
3 Set Timer

Tap the forward button one more time, and the undocumented Timing display will appear. This optional feature allows you to set the iDate to be less discriminating over time—less picky at 1:45 a.m., say, than at 9 p.m. Scroll to the degree of degradation you're willing to accept, click the selection button, then set a new time range. A final note: We strongly recommend setting the Hold slider before placing your iPod in pocket or purse—accidentally resetting some iDate functions may give you some exceptionally unpleasant results.



Your standards slip lower and lower as the evening drags on—why shouldn't your iDate's?

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Every day, more and more Macintosh professionals are choosing TechTool over other system utilities. In fact, even Apple Computer includes TechTool Deluxe with every copy of their AppleCare™ Protection Plan. Simply put, TechTool Pro 3 is the most complete and powerful troubleshooting utility available for your computer. Why would you settle for anything less?

In with the newer...



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While Drive 10 is a new product, it is derived from TechTool Pro, Micromat's world-class diagnostic and repair utility. Using TechTool's time-tested routines as well as some new routines developed exclusively for OS X, Drive 10 offers many tools for checking and repairing any drive on your system. Don't entrust your OS X drive to ancient utilities. Protect your data and drive safely with Drive 10.



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hard drives can be positioned
vertically or horizontally, alone
or racked as a group. Drives
available in FireWire, USB 2.0
or SCSI interfaces with up
to 160 GB of idea storage.



Made for ideas.